Running head: CONSEQUENCES OF OCCUPATIONAL INJURIES

Looking Beneath the Surface:

The Personal and Family Consequences of Occupational Injuries

by

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A thesis submitted to the Faculty of Graduate and Postdoctoral

Affairs in partial fulfillment of the requirements

for the degree of

Master of Arts

in

Psychology

Carleton University

Ottawa, Ontario

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Abstract

To date, the individual and familial consequences that may ensue following a workplace injury have not been fully examined. In this research, I examine how mental and physical workplace injuries influence personal and family outcomes, within a military organizational context. The results of Study 1 ($N = 888$) indicate that occupational injuries are related to psychological well-being, relationship with spouse, and relationship with children. Study 2 ($N = 1836$) examines the relationship between injuries of military members and the well-being of military spouses. The results indicate that having an injured military member spouse is related to psychological distress, relationship satisfaction and emotional intimate partner violence. Furthermore, it appears that some of these effects are buffered when spouses have financial stability, a higher sense of organizational support, and satisfaction with the organization. This research contributes to the broad understanding of workplace injuries, and has implications for future research and practice.

Keywords: occupational injuries, stress, work-life/family interface, spillover, crossover, resources

Acknowledgments

I am grateful for the support of many individuals without whom I could have never completed this thesis. First and foremost, my supervisor, Dr. Kathryne Dupré — thank you for your continual support and expertise through this endeavor.

Next, I would like to thank Dr. Bernadette Campbell and Dr. Janet Mantler for their insightful comments in the development of this thesis. Special thank you to my external committee member, Dr. Angela Dionisi for her expertise and time, and Dr. Rachel Burns for agreeing to chair the defence meeting for this thesis. I must thank my fellow lab mates, Chelsie Smith and Amanda McEvoy, for their brainstorming sessions, and support. Thank you also to Ms. Etelle Bourassa for her administrative proficiency and her kindness over the years.

This research would not have been possible without the assistance of the Department of National Defence who graciously permitted me to use their data. A special thank you to the members of the Canadian Forces and their spouses who participated in this research and continue to serve their country despite all the challenges they endure.

I thank my friends and coworkers who offered encouragement and moral support. Nobody has been more important to me in the pursuit of this work than the members of my family. I would like to thank my parents, who have provided me love and constant encouragement through my entire life. I will forever be indebted to them.

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Looking Beneath the Surface:

The Personal and Family Consequences of Occupational Injuries

The bi-directional relationship between work lives and personal lives is well known and recognized, with strong empirical support for the notion that experiences at work can greatly influence one's life outside of work, and vice versa (e.g., Frone, Russell, & Cooper, 1992; Greenhaus & Allen, 2011; Kossek & Ozeki, 1998). This work-family relationship tends to be especially salient when one experiences major stressors in one domain. For example, experiencing significant workplace stress has been shown to negatively influence individuals' home and personal lives (Allen, Herst, Bruck, & Sutton, 2000). Particularly, and of relevance to the current research, workplace injuries bring about considerable changes to the lives of the injured (Boschen, Tonack, & Gargaro, 2005). Experiencing a workplace injury has the potential to influence one's overall quality of life, work-family balance, and personal relationships (Dembe, 2001; Lawrence, Halbesleben, & Paustian-Underdahl, 2013; Verhaeghe, Defloor, & Grypdonck, 2005). Furthermore, injuries may have an effect on those persons in close personal relationships with injured individuals, and among those, the effect may be most salient for the spouses¹ of those who have been injured (Chwalisz, 1996; Palmisano & Arco, 2007).

Depending on the nature of a workplace injury, spouses of those who have been injured may have to confront unexpected needs related to the injury, along with associated responsibilities, which over time may lead to various manifestations of distress. Although this pattern has been documented in situations where spouses take on increased responsibility as a result of spousal injury or illness – caregiver spouses have at

¹ The term "spouse" is used to refer to both married and common-law partners throughout this manuscript.

times even been referred to as “the hidden patients” (Fengler & Goodrich, 1979) – relatively little attention has been paid to understanding spousal experiences and to developing interventions to meet their needs. Overall, research on the impact of occupational injury on both personal and family outcomes is limited, and the current research concentrates on addressing this limitation. In doing so, the focus was on a specific employment group, namely, military members.

The Military Context

Individuals who are members of the military often experience considerable interaction between their work and family, even more so than employees in most other occupations. Many military members have to deal with exceptional occupational burdens, including overseas deployments, frequent separations from friends and families, the risk of injury or death, and job postings that often involve moving to various geographical locations (Castro, Bienvenu, Huffman, & Adler, 2001). Research indicates that facing extreme deployment-related stressors, hostile situations, and demanding physical fitness requirements put military personnel at increased risk of experiencing injuries, which has consequences for both themselves and their families. In Canada, for example, the pace and tempo of the combat missions in Afghanistan had significant effects on military personnel and their families (Sudom & Eyvindson, 2008). Findings indicated that combat exposure was the most important driver of deployment-related mental health problems (Zamorski & Boulos, 2014).

Despite some existing empirical evidence that injuries affect individuals and their families (e.g., Carlozzi et al., 2015; Rodakowski, Skidmore, Rogers, & Schulz, 2013; Strunin & Boden, 2004), limited empirical research has focused on this area, and

moreover, even less research focuses on how injuries affect individuals and their families in specific industries or organizations. Focusing on one organization allows a more detailed, comprehensive understanding of a particular context, while still being generalizable to other situations. Of relevance to the current studies, minimal research has been conducted examining the impact of military workplace injuries on personal outcomes, such as well-being and relationships with family members. Thus, the aim of my research was (1) to extend previous research that has examined the individual effects of occupational injuries by examining outcomes of injuries among military members, and (2) to explore the effects of workplace injuries on the spouses of injured military members. In Study 1, I examined how occupational injuries are related to well-being and relationship outcomes among injured military members, and what conditions may exacerbate or mitigate these effects. From a moderating perspective, I focused on the role of contextual resources, including satisfaction with military career, satisfaction with health care received, and sense of military community belonging. Outcomes included psychological distress, alcohol use and relationship with one's spouse and children. In Study 2, I evaluated the impact of occupational injuries on spouses. Specifically, in this study, I examined the moderating factors that may buffer the effects of military members' injuries on spouses, including perceived organizational support, satisfaction with organization, and financial strain. The outcomes included psychological distress, relationship quality, and experiences of intimate partner violence.

The Work-Family Interface and Work-Related Stress

Work and family constitute important life roles for many employed adults in today's society. Increased scholarly attention to the work-family interface has been

motivated by many factors including the increasing proportions of dual-career couples, single parents, alternative family structures, and the decline in adherence to traditional gender roles (Powell & Greenhaus, 2010). Many empirical studies examining work-family interface have provided evidence that the two domains influence each other (e.g., Agha, Azmi, & Irfan, 2017; Bellavia & Frone, 2005; Boyar, Maertz, Person, & Keough, 2003; Grandey, Cordeiro, & Crouter, 2005; Huang, Hammer, Neal, & Perrin, 2004; Knecht, Wiese, & Freund, 2016). Work-family outcomes can be positive or negative in nature (Greenhaus & Allen, 2010) and have implications for both individuals (e.g., satisfaction, wellness) and organizations (e.g., productivity, turnover). Work-family balance occurs when one is equally engaged and satisfied with his or her work role and family role (Greenhaus, Collins, & Shaw, 2003), while work-family conflict tends to occur when demands from work and family roles compete, such that participation in one role interferes with one's ability to participate in the other (Greenhaus & Beutell, 1985). The awareness of the potential positive and negative effects associated with work and family demands has led to the emergence of work-family interface as a prominent issue in occupational research. Balancing work and family is recognized as important, not only for individuals in the workforce, but also for the organizations that employ them. Given this widespread recognition of the importance of work-family interface, a number of theoretical models have been proposed in support of this interrelationship.

The spillover model proposes that work and family can influence one another in either a positive or negative way, such that an individual may bring positive or negative moods, attitudes, or behaviours from work to home and vice-versa (Edwards & Rothbard, 2000). There is significant evidence that the effect of occupational stress "spills over"

into home and social environments (e.g., Bakker, Demerouti, & Burke, 2009; Byron, 2005; Kendall & Muenchberger, 2009). For example, Ferguson, Carlson, & Kacmar (2014) found that flexibility at work is associated not only to positive work outcomes (i.e. affective commitment), but also spills over to the employee's life by way of its positive relationship with family functioning.

In addition, the crossover model focuses on the reaction of individuals to the job stress or strain experienced by those with whom they regularly interact (between-individuals; Westman, 2001). It is assumed that spillover has to happen first before crossover of work-related experiences can happen (Bakker, & Demerouti, 2012). Several studies provided evidence of the crossover effect, i.e., one partner's stress crosses over and influences the well-being of the other partner (Bakker, Demerouti, & Dollard, 2008; Bakker, Demerouti, & Schaufeli, 2005; Westman, Etzion, & Danon, 2001; Westman, Etzion, & Horovitz, 2004).

While the research based on these models provide support for the influence of work on family (and vice versa), it has been proposed that a more comprehensive stress model should be used to guide work-family research (Grandey & Cropanzano, 1999). The Conservation of Resources theory (COR; Hobfoll, 1989) has been offered as an integrative stress-motivation theory that describes how individuals react to stressors and how these stressors impact their well-being. The basic idea underlying COR theory is that resource loss is the principal component in the stress process (Hobfoll, 2001). That is, stress will occur when resources are threatened or lost. The first assumption of COR theory is that individuals strive to obtain, retain, and protect resources. Resources are considered anything that could contribute positively to an individual's well-being, and

that help them to cope with stressors. Resources are defined as entities that are valued in their own right (e.g., self-esteem, close attachments, health), or as a means to obtain valued outcomes (e.g., money, social support, and credit) (Hobfoll, 2002). A “resource” is anything that is important to the person, and positively contributes to their well-being. In the overview of COR theory and its applications, Hobfoll (1989) identified 74 different types of resources. Based on the source/origin of the resources, two main categories of resources have been identified: *Personal resources* including personal traits, skills, energies and health, and *contextual resources*, which include external factors in the social context of the individual (e.g. wealth, employment, home, social support) (ten Brummelhuis & Bakker, 2012). Contextual resources will vary depending on the context the person functions in. In a work context, for example, features such as having social support from work colleagues and perceived organizational support represent major contextual resources, which can reduce stress and burnout (Halbesleben, 2006). To cope with the stress they experience in one domain due to threatened or lost resources, individuals often utilize resources from other life domains (Hobfoll, 2001). For example, experiencing interpersonal conflict at home can be partially compensated by greater investment in work-related resources (Hobfoll, 2001).

Given its cross-domain relevance, COR theory has been successfully applied to extreme stress, everyday work stress, stress in chronic health circumstances, and role stress (Hobfoll, 2001). Furthermore, this theory has been used as a principal explanatory framework in the domain of organizational stress and work-family conflict (e.g., Brotheridge & Lee, 2002; Grandey & Cropanzano, 1999; Ito & Brotheridge, 2003; Lawrence et al., 2013). In terms of resources, several personal and contextual resources

have been identified in work-family studies (ten Brummelhuis & Bakker, 2012). For example, consistent with COR theory regarding the nature of work-family resources, Lawrence and colleagues (2013) found that supervisor support is a significant contextual resource as it mitigates the level of insecurity and work-family conflict experienced by injured employees. Ito and Brotheridge (2003) found that both personal (i.e., internal locus of control) and contextual (i.e., higher levels of autonomy and supervisor support) resources impacted the level of emotional exhaustion in employees. Specifically, the employees who were experiencing higher levels of autonomy, supervisor support, and had an internal locus of control, tended to experience lower levels of emotional exhaustion (Ito & Brotheridge, 2003).

In summary, COR theory (Hobfoll, 1989) offers a theoretical guide for understanding the work-family literature. This approach provides an explanation for how workplace threats and losses (including injuries) lead to perceived threats to the family/home domain (Lawrence et al., 2013). According to the COR theory, as more stress is experienced in one domain, fewer resources are available to fulfill one's role in another domain. In addition, COR theory allows for predictions about the moderating relationships of personal and contextual resources between stressors and well-being outcomes.

Consequences of injuries at work

Individual Effects. There is much evidence showing that work affects individuals' overall well-being and life satisfaction (e.g., Coad & Binder, 2014; Bakker, 2011). In particular, research strongly supports the notion that negative work events have detrimental effects for employees. For example, it has been found that burnout at work

predicted depressive symptoms and dissatisfaction with life four years later (e.g., Hakanen & Schaufeli, 2012). Similarly, a study of 24,000 workers across twenty-seven countries found that employees reporting a poor work–life balance reported more health problems (Lunau, Bambra, Eikemo, van der Wel & Dragano, 2014). Overall, numerous studies have provided evidence that work stress affects individual health outcomes, such as anxiety and depression (e.g., Fan, Blumenthal, Watkins, & Sherwood, 2015; Hakanen & Schaufeli, 2012; Wang & Peng, 2017), higher heart rate reactivity (Black, Balanos, & Whittaker, 2017), alcohol-related issues (e.g., Grzywacz & Bass, 2003), and suboptimal sleep quality (e.g., Nylen, Melin, & Laflamme, 2007). A recent review of the work–family interface literature highlighted the consistent associations between work–family conflict and several well-being constructs, including life satisfaction, marital satisfaction, burnout, and both physical and psychological strain (Allen, 2012).

Despite the depth of research focusing on the individual and organizational outcomes associated with the experience of work, there continues to be an incomplete understanding of the consequences of occupational injuries (e.g., Lawrence, Halbesleben, & Paustian-Underdahl, 2013). Very little research has explored the effects of workplace injuries. In fact, the majority of research focusing on workplace injuries has solely focused on the antecedents of occupational injuries. For example, studies have concentrated on understanding the role of safety climate (Chowdhury & Endres, 2010), work design (Dembe, Erickson, Delbos, & Banks, 2005), and perceived supervisor and organizational support (Barling, Loughlin, & Kelloway, 2002) on workplace injury rates. Further, most of the focus of research in the occupational injury domain has been on physical workplace injuries. It is important to note that occupational injuries can be of a

physical or mental nature; indeed, mental injury at work is now recognized as a serious source of loss to employees, their families, and organizations (Shain & Nassar, 2009). It has been suggested that the compensation of damages related to mental injury at work have increased over the last five years by as much as 700% in Canada (Shain & Nassar, 2009), indicating that this type of occupational injury is now much more widely recognized than in the past.

Occupational injuries result in substantial organizational economic costs resulting from, among other factors, medical fees, lost productivity, paid sick days, and replacement workers (Barling, Kelloway, & Iverson, 2003). Employees who are harmed at work will often inevitably personally endure much of the consequence of the workplace injury. Depending upon the nature of the injury, the experience of being injured at work can be devastating, with profound emotional consequences (e.g., Kim, 2013). For example, people may become isolated from, and/or alienated from their family and colleagues. Indeed, injured workers were more likely to suffer from depression when compared to non-injured workers (Asfaw & Souza, 2012).

Familial Effects. In general, research supports the notion that work influences family outcomes; individuals who experience high levels of work-family conflict often report decreased levels of life satisfaction and family satisfaction (Allen et al., 2000), while one's work experiences have been shown to affect his or her spouse's well-being and relationship satisfaction (e.g., Bakker, Demerouti, & Burke 2009). Studies have found evidence of the crossover of psychological stress and strain such as anxiety, depression, burnout, and perceived health between romantic partners. For example, individuals' work-related burnout predicted increased interpersonal withdrawal from their

respective spouses (King, & DeLongis, 2014). Haines, Marchand, and Harvey (2006) found that stress resulting from harassment and aggressive behaviour experienced by individuals at work crossed over to create psychological distress in the victims' partners. Finally, in a study of registered nurses, workplace injury severity was associated with spousal financial insecurity and spousal work-family conflict (Lawrence et al., 2013). Overall, there is evidence of negative consequences of occupational injuries on families, such as financial difficulties and family disruptions (e.g., Keogh, Nuwayhid, Gordon, & Gucer, 2000).

Overall, previous research suggests that negative events in one domain of life (e.g., personal injury at work or injured spouse) may result in strain in other areas of life, such as personal outcomes and relationships with family members. In the current research context, it is proposed that occupational injuries may affect the injured person at home, and may influence the spouse of the injured person as well.

COR Theory and Occupational Injuries. As discussed previously, the COR theory (Hobfoll, 1989), focuses on ensuring the availability of resources required during a stressful time, as well as compensating for resource loss. The main tenet of this theory is that resource loss is the most critical axis of the stress experience (Hobfoll & Lilly, 1993). Furthermore, it has been suggested that resource loss is more impactful than the absence of a resource (Ennis, Hobfoll, & Schroder & Kerstin, 2000). For example, researchers found that persistent levels of scarce economic resources were not strongly associated with depression, while greater material loss predicted depression (Ennis et al., 2000). This could be applied to the context of health; based on the COR theory, the experience of occupational injury by healthy individuals might be more stressful than the

experiences of those living with chronically poor health. While dealing with an ongoing health issue is likely never easy, individuals with lifelong health conditions, such as diabetes, arthritis or asthma may learn coping strategies and adjust their expectations based on these conditions. However, for young military members whose health and fitness is part of their identity, it is likely that experiencing an injury more categorically represents a resource loss. Indeed, personal health and spousal health have been identified as valued COR resources themselves (Hobfoll, 2001).

Experiencing an occupational injury has the potential to result in multiple losses, such as loss of sense of identity, self-worth and dignity (Lax & Klein, 2008), and loss of social status (Strunin & Boden, 2004). These losses might put an injured person into a downward loss spiral, affecting one's daily life in terms of performance at work, financial situation and overall self-confidence. According to the COR theory, those who lack resources are more vulnerable to resource loss, and initial loss triggers future loss (Hobfoll, 2001). To varying degrees, an injured person may find it challenging to do household chores, to complete parenting duties, and to participate in activities that they used to enjoy. A study with injured workers showed that being unable to work as before and not be engaged in meaningful work resulted in a decreased sense of well-being (Stone, 2003). Work ethic remained a source of pride for injured individuals and maintaining their identity as 'workers' was important. A way to mitigate these losses, according to the COR theory, would be to rely on other resources that positively affect one's well-being (Hobfoll, 2001), such as contextual resources. As previously noted, contextual resources are located outside the self and can be found in the social context of the individual (ten Brummelhuis & Bakker, 2012). While dealing with injury, resource

gains from contextual resources could be especially relevant and beneficial to one's well-being. For example, when one person's resources in the social context (such as satisfying career, organizational support and good health care) increase, he or she may be better equipped to deal with challenges associated with injury, resulting in better well-being.

Contextual Resources

It is important to consider the factors that may play a buffering role on the relationship between occupational injuries and individual outcomes. Identifying such factors is important for understanding how the effects of occupational injuries can be mitigated, and in terms of designing interventions and policies that focus on reducing the negative effects of occupational injuries. Dembe (2001) proposed a model illustrating several examples of the ways that "modifying factors" may determine the social consequences of an occupational injury or illness. This model illustrates how occupational injuries and illnesses, and their consequences, can be viewed as part of an interplay of interactions between employees, their jobs, and their social environment. Dembe suggested that "the research studies of social consequences will need to account for the multifactorial influences of personal, social, organizational, and environmental variables and the complex interplay of the individual worker with a variety of forces from the workplace, community, medical profession, workers' compensation system, and broader society" (Dembe, 2001, p. 413). These domains (i.e., workplace, community, medical profession, workers' compensation system, and broader society) represent contextual resources that reflect the broader experiences of injured individuals.

According to the COR theory, contextual resources that contribute positively to one's well-being and enable them to adjust, will vary depending on the kind of

environment the person functions in (Dewe, O'Driscoll, & Cooper, 2012). The present study examined several contextual resources with the potential to mitigate the negative effects of injury on personal and familial outcomes. These contextual resources, supported by theory and empirical evidence, are also relevant to this particular context (i.e., military members and their spouses dealing with workplace injuries). Further, the resources included one's satisfaction with health care received, satisfaction with career, sense of community belonging, perceived organizational support, and financial stability. Each of these resources are discussed in further detail below.

Injury in the Military

In Canada, over the past ten years, the shift from peacekeeping to active combat has been associated with an increase in the prevalence of operational stress injuries. Of the 30,000 Canadian Armed Forces (CAF) members who were deployed to Afghanistan prior to 2009, 13.2% were diagnosed with an operational stress injury in the five years following deployment (Boulos & Zamorski, 2013). The majority of military members are married and their spouses play a key role in the recovery process (Badr, Barker, & Milbury, 2011). As well, it has been suggested that military injuries can require couples to make adjustments to new changes in physical and emotional health (Badr et al., 2011). Given these consequences, it is important to improve the understanding of the outcomes associated with occupational injury among military members.

Dealing with mental and physical injuries in the military might have additional challenges compared to injuries in other occupations. For example, because of the high-level fitness requirements for all military members, becoming injured in the military could have significant implications for one's career. In Canada, all military members are

required to meet minimum physical fitness standards every year to ensure they are capable of performing basic military duties. Those who fail are considered non-deployable and may face career restrictions (National Defence and the Canadian Armed Forces, 2011).

While there has been some research that addresses issues related to military members who have experienced injuries or who are medically released due to injuries, it is important to continue to focus on this issue. In particular, contributing to the understanding of what might attenuate or mitigate the outcomes associated with workplace injuries is important in general, and also for this specific organization. Further, there has been very little research addressing the experiences of spouses of injured military members. Of the scarce research that exists, the focus is on how to enable civilian spouses to support the health of their military family members, rather than their own health and well-being (Nash & Litz, 2013). Depending on overall general health, the injured member may have to adapt to physical and emotional changes, while the entire family may be required to adapt to new circumstances.

Overview of the Current Research

As supported by theory and previous empirical findings, it is proposed that occupational injuries influence personal and family outcomes, such that injuries have an impact on both the injured individual and the injured individual's spouse. In addition, there are contributing factors that may serve either as protective or risk factors in these relationships. Thus, it is proposed that certain variables may buffer or exacerbate the relationship between injuries in military members and personal and family outcomes, resulting in effects to the well-being of both injured military members and their spouses.

Overall, the aim of this research was to assess how workplace injuries influence personal and family outcomes, focusing specifically on the military workplace context. To do so, two studies are conducted. Study 1 examined the impact of injury on military members' well-being and family relationships, and the factors that may buffer or moderate this relationship. To the extent that an injury may affect not only the injured member, but also their spouses, it is important to examine this relationship and to identify the factors that promote well-being of spouses. Thus, Study 2 focused on the well-being of military spouses, and evaluated the relationship between military members' injuries and quality of life of military spouses.

Study 1: Injured Members

Proposed Relationships

Injuries that cause changes in behaviour or capabilities can challenge interpersonal relationships and one's overall well-being. The symptoms that accompany many types of injuries may contribute to one's overall distress and have detrimental effects on relationships with family members. Figure 1 represents the proposed relationships between injured members' perceived general health, contextual resources, and personal outcomes. The goal of this study is to extend previous research by improving our understanding of the outcomes associated with occupational injuries by examining the moderating role of contextual resources (i.e., satisfaction with health care, satisfaction with career, and sense of community belonging) on the relationship between general health and personal outcomes among injured individuals (Figure 1).

Figure 1. Proposed relationships between injured members' general health, contextual resources, well-being and familial relationships.

The Assessment of Injuries

Existing statistics and information indicate that there is wide variation among types of workplace injuries (e.g., Dupré, 2000). Injuries may not only vary in type, but also in severity (Barling et al., 2003). As a result of these vast differences, across research and applied settings, injuries have been assessed in various ways.

In Canada, musculoskeletal injuries and mental illness are the most common health issues experienced by military members. Administrative data from the Canadian Department of National Defence (DND) over the past five years show that, of those who are medically released every year, they are mostly suffering from musculoskeletal injuries (42%) or mental health illness (41%) (Canadian Forces Health Services Group, 2014). Musculoskeletal injuries in the military are widespread due to combat, training and rigorous fitness requirements imposed on military members. Indeed, musculoskeletal injuries result in the most medical encounters, lost duty days, and service members on permanent disability (Roy et al., 2014).

Having faced extreme stress and hostile situations, military personnel are at increased risk of experiencing mental health problems. These are often referred to as

"invisible injuries" because they are not as readily observable to others as a broken leg, yet they may cause significant disruption to life and impose functional disability (Vasterling, Bryant, & Keane, 2012). In Canada, the military has made a significant effort to treat physical and mental injuries with the same legitimacy. This includes using the terminology "operational stress injury" or OSI, which is not a medical term, but one used by the CAF to encourage its members to come forward for treatment. The term "Operational Stress Injury" (OSI) is not a diagnosis; rather it is a grouping of diagnoses that are related to injuries that occur as a result of operations. The most common OSIs are post-traumatic stress disorder (PTSD), major depressive disorder and generalized anxiety (Canadian Forces Health Services Group, 2013).

Both, musculoskeletal and mental injuries are often attributed to operational deployments, but also to the impact of other stressors associated with service in the military. These range from physically demanding exercises to frequent separations from family and unpredictably long hours. Those who have physical operational injuries are also at significant risk of developing mental health issues long-term. This could happen either during the recovery period or when the initial sub-clinical symptoms go unnoticed (Cozza, Holmes, & Van Ost, 2013). Indeed, several civilian studies have found that depressive symptoms are a common occurrence following workplace musculoskeletal injuries (e.g., Keogh et al., 2000; Kim, 2013).

It has been found that some mental disorders and physical health problems co-occur at high rates among Canadian Veterans, and that this comorbidity is linked to poorer physical health-related quality of life and activity limitations (El-Gabalawy et al., 2015). Indeed, a large epidemiological study of CAF veterans found that 90% of CAF

veterans diagnosed with a chronic mental health condition, (i.e., mood disorder, anxiety disorder or PTSD) reported having a chronic physical health condition (Thompson et al., 2014).

Injury. To examine the effects of occupational injuries in the current study, participants include those who reported being diagnosed with a chronic condition (that lasted six months or more) related to either mental illness or musculoskeletal injury, and who also reported taking prescription medication for this condition.

It has been suggested that the effects of injuries should be examined beyond the perspective of an injury as binary (i.e., injured or not injured) to include an assessment of severity or how the injury is affecting the individual (e.g., Dupré & Barling, 2015). Thus, in this study, injury is operationalized as the perceptions of the overall health status of individuals who have been injured. Individuals' assessment of their own health may include components that are difficult to capture clinically, such as disease severity, comorbidity of mental disorders and physical conditions, and social functioning (Kumar Sharma, Imtiaz, Prakash Singh, Bihari Gupta, & Prakash Shrotriya, 2014). Previous research has shown that individuals' assessment of their own health may be more effective than clinical measures for predicting help-seeking behaviours and health service use (Shields & Shooshtari, 2001). Moreover, based on longitudinal studies, it has been shown that self-perceived health is predictive of chronic disease incidence (Shadbolt, 1997), recovery from illness (Wilcox, Kasl & Idler, 1996), functional limitations (Idler, Russell, & Davis, 2000), and use of medical services (Miilunpalo, Vuori, Oja, Pasanen, & Urponen, 1997). Perceived health is a relative measure, such that there is sufficient evidence to suggest that people assess their own health in relation to their circumstances

and expectations (Shields & Shooshtari, 2001). As such, the responses of injured members reflecting on their overall health status may be an important predictor of the impact of injury on their familial relationships and well-being.

Consequences of Occupational Injuries

The present study focused on understanding the impact of injury on one's psychological distress, alcohol use and relationship with spouse and children.

Psychological distress. The impact of occupational injury on one's well-being has been documented in several studies. For example, Dong, Wang, Largay, and Sokas (2015) assessed the long-term psychological impact among workers with occupational injuries and found that the rates of depression, emotional problems, and physician-diagnosed psychiatric conditions were 17%, 12%, and 6%, respectively. Another study found that about 50% of injured workers experience high depressive symptoms at some point in the year following their injury (Carnide et al., 2016). Also, injured workers often report negative emotions, anxiety, and depression (Lippel, 2007; Robert-Yates, 2003) and lower quality of life (Adams et al., 2002).

Among military members, longitudinal data suggest that injured service members are at significant risk for reporting psychological distress and depression (Koren, Norman, Cohen, Berman, & Klein, 2005; MacGregor et al., 2009). Military members who have been diagnosed with an occupational injury undergo tremendous amounts of stress that may influence psychological well-being and physical health (Benyamini, Ein-Dor, Ginzburg, & Solomon, 2009). Based on the research in this domain, it is expected that psychological well-being will be negatively affected by the stress associated with occupational injuries.

Alcohol Use. In addition to personal consequences discussed earlier, it has been recognized that problematic drinking is sometimes adopted behaviour during stressful times. The proponents of the self-medication hypothesis suggest that alcohol is used to reduce the distress and anxiety resulting from injuries (Brown & Wolfe, 1994). Problematic alcohol use has been consistently implicated as a risk factor for many different outcomes including marital difficulties and psychological distress. Furthermore, population-based studies have shown that among men, alcohol abuse is the most highly comorbid psychiatric problem with PTSD in both community (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) and veteran samples (Kulka et al., 1990). In addition, alcohol has been identified as a risk factor for intimate partner violence across a range of civilian (e.g. Murphy, O'Farrell, Fals-Stewart, & Feehan, 2001) and veteran samples (e.g. Savarese, Suvak, King, & King, 2001). Indeed, heavier drinking by male partners tends to put women at greater risk for experiencing intimate partner violence (White & Chen, 2002).

Relationship with spouse. Studies of healthy individuals and individuals *with* chronic illness have found an association between marital quality and health (Robles, Slatcher, Trombello, & McGinn, 2014), and overall, “there is ample evidence that intimate relationships can impact illness processes or outcomes...” (Kiecolt-Glaser & Newton, 2001, p. 487). Dealing with serious injury/illness presents significant challenges to the injured and his/her partners. New circumstances related to living with injury/illness may have a significant impact on the quality and stability of the relationship. Research with individuals with traumatic brain injury (TBI), for example, has found that their

personality and behavioural changes, expressed as aggression and disinhibition, may significantly affect the spousal relationship (Rieger, 2015).

There is, in fact, some evidence suggesting that occupational injuries affect family well-being and relationship with one's spouse. Specifically, workers with occupational injuries were found to have increased levels of stress at home and were more likely to divorce (Morse et al., 1998). Among those with chronic back pain, increased family conflict was associated with increased distress and pain (Feuerstein, Sult, & Houle, 1985). Another study found that among those with occupational injuries, several reported relationship breakups with some attributing their break-up directly to the disruption caused by the injury (Ballantyne, 2001). The limitations experienced by injured workers often result in the restructuring of family and social roles, relationships, and self-identities, which leads to depression and anger among the injured workers and to stress and strain in family relationships (Strunin and Boden, 2004).

Studies indicate that veterans with PTSD often report lower levels of marital adjustment (Solomon, Debby-Aharon, Zerach, & Horesh, 2011), poorer communication with their partners and difficulties with intimacy (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004), anger and interpersonal violence (Beckham, Moore, & Reynolds, 2000), and divorce intentions (Riggs, Byrne, Weathers, & Litz, 1998). Indeed, there is research showing the negative effects of PTSD among veterans on interpersonal relations, which in turn can manifest as poorer family functioning and marital adjustment (MacDonald, Chamberlain, Long, & Flett, 1999). Similarly, veterans diagnosed with traumatic brain injury (TBI) report difficulties engaging in social settings because of communication

problems, poor anger management, and difficulties with emotional and behavioural regulation (Resnik & Allen, 2007).

Relationship with children. As noted earlier, occupational injuries, whether they are physical or psychological, have the potential to impact the entire family, including children. Empirical literature indicates that parental emotional distress constitutes an important risk for poor adjustment in children (Beardslee, 1984; Lester, Stein, & Bursch, 2003). A literature review on the impact of TBI on family suggests that parents with head injuries are at a high risk of treating their children poorly or unintentionally neglecting them (Perlesz, Kinsella, & Crowe, 1999). Indeed, children from TBI-affected families act out more often and experience emotional problems following the injury (Pessar, Coad, Linn, & Willer, 1993). The impact on the parent/child emotional relationship was explained by the injured worker's poor disposition, as well as an inability to continue with physical activities with their children (Strunin & Boden, 2004).

Children of military members face various stressors, which can negatively impact their well-being and their relationship with their parents. Evidence indicates that the recent conflicts in Iraq and Afghanistan (2003-2011, 2001- present, respectively) have negatively affected the children of US troops deployed there. Indeed, an increase in the rate of child maltreatment among military members has been reported since the start of these conflicts (Rentz et al., 2007). Further, children whose military parents reported high levels of PTSD symptoms displayed significantly more emotional problems, such as withdrawal, depression, anxiety, and somatic complaints (Herzog, 2008). A study focusing on Army spouses with children showed that parents who reported high levels of stress were seven times as likely to report psychosocial problems in their children (Flake,

Davis, Johnson, & Middleton, 2009). Research with veterans diagnosed with PTSD has shown the strong relationship between emotional numbing experienced by these veterans and the parent–child relationship (Ruscio, Weathers, King, & King, 2002). The authors suggested that emotional numbing, detachment, and avoidance may directly impact the veteran’s ability to parent by diminishing their capacity to have normal interactions with their children, which is required to develop a meaningful relationship (Ruscio et al., 2002).

Moderating Factors

Although some direct relationships between occupational injuries and particular outcomes have been empirically established, insufficient attention has been given to the mechanisms that may explain these relationships (Barling & Frone, 2004). Moderating resources are an essential component of any model of the stress process, because the stressors alone usually do not explain their related outcomes; that is, people exposed to the same stressor may be affected by it in different ways (Pearlin, Lieberman, Menaghan, & Mullan, 1981). Therefore, in Study 1, I focused on identifying the contextual resources that moderate the relationship between perceived general health and well-being and personal relationships of injured military members.

Satisfaction with health care. Experiences with health care received while one is dealing with occupational injury can significantly impact one’s well-being during this process. It has been suggested that due to injured workers’ inability to consistently choose health providers (since care is usually provided within managed care plans), patient satisfaction is typically lowered (Dembe, 1998). Furthermore, it was found that injured workers who reported less-favourable medical treatment were almost four times

as likely to be receiving time-loss compensation for the inability to work due to injury, 6 or 12 months after injury, compared to patients whose treatment experience was more positive (Wickizer et al., 2004).

While research on the role of satisfaction with health care received on employee's well-being is scarce in the civilian literature, it is essentially non-existent in military studies. In Canada, military members' health care is provided through National Defence and Canadian Armed Forces, by health care practitioners who are members of the military, or the public service. In the most recent Health and Lifestyle Information Survey, most (79.2%) military members felt that the quality of care they received from physicians at CF Health Services was good, very good, or excellent (Thériault, Gabler, & Naicker, 2016). However, satisfaction with health care may vary among those diagnosed with chronic health conditions. Moreover, the role of satisfaction with health care in buffering the effects of injuries on members' well-being has not been explored.

Satisfaction with career. As suggested earlier, a significant body of research has confirmed that experiences in the workplace strongly affect one's life outside of work. This impact might be even more prevalent when one suffers an occupational injury. The perception of the organization and supports one receives while coping with an occupational injury can certainly influence one's coping process and affect one's personal and familial related outcomes. There are studies that suggest the impact of different dimensions of the workplace on personal outcomes. Research has found that the quality of the work environment and the relationships among co-workers are crucial in the prevention of poor mental health outcomes among injured workers (Kendall & Muenchberger, 2009). Furthermore, it has been suggested that poor supervisory and

organisational support is increasingly recognized as a significant psychosocial barrier contributing to injury outcomes (Cotton, 2006). Finally, it has been found that job satisfaction specifically determines the psychosocial response a person may have to an injury (Brewin, Robson, & Shapiro, 1983).

Sense of community belonging. When one is dealing with an occupational injury, the role of community can have a strong impact on the recovery process and overall well-being. This is particularly true within groups such as the military community, since military members tend to cherish their identities as military and their identity is often central to their sense of self (Laar, 1999). It is not unusual that those suffering from occupational injuries feel isolated, which can further negatively impact their well-being (Cacciaccaro & Kirsh, 2006). Similarly, injured workers reported a loss of important aspects of identity as a consequence of their injury (Lax & Klein, 2008).

Community belonging is often used as a proxy measure for social support in health literature (Carpiano & Hystad, 2011) and it is often studied as a determinant of health outcomes. Sense of belonging is defined as “the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment” (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992, p.173). It is recognized as an important determinant of psychological and physical well-being (Hagerty & Patusky 1995). Sense of belonging influences mental health; it moderates the effect of stress on depression, regardless of level of stress (Choenarom, Williams, & Hagerty, 2005). Findings also show that it is positively related to self-reported health (Ross, 2002; Shields, 2008). Hystad and Carpiano (2009) went further and concluded that community belonging is strongly related to health-behaviour

(e.g. diet, exercise) change and may be an important component of population health prevention strategies. Huebner, Johnson, Bennett, and Schneck (2003) found that at follow-up (21 months post-injury) more community participation was related to higher quality of life among individuals with traumatic brain injury. Finally, a sense of community belonging acted as a protective factor that was associated with easier adjustment to civilian life for veterans with physical health conditions, mental health conditions, and higher levels of life stress (Hachey et al., 2016).

Based on the discussion above, I propose the following relationships:

Hypothesis 1: Injured individuals will report higher psychological distress, more alcohol use, lower relationship quality with spouse, and lower relationship quality with children, compared to non-injured individuals.

Hypothesis 2: Lower perceived general health among injured individuals will be positively associated with psychological distress and alcohol use, and negatively associated with relationship with spouse and relationship with children.

Hypothesis 3: Satisfaction with health care among injured individuals will moderate the relationship between (a) perceived general health and psychological distress; (b) perceived general health and alcohol use; (c) perceived general health and relationship quality with spouse; and (d) perceived general health and relationship quality with children. Specifically, as satisfaction with health care increases, the effect of low perceived general health on strain outcomes will decrease.

Hypothesis 4: Satisfaction with career among injured individuals will moderate the relationship between (a) perceived general health and psychological distress; (b) perceived general health and alcohol use; (c) perceived general health and relationship

quality with spouse; and (d) perceived general health and relationship quality with children. Specifically, as satisfaction with career increases, the effect of low perceived general health on strain outcomes will decrease.

Hypothesis 5: Sense of community belonging among injured individuals will moderate the relationship between (a) perceived general health and psychological distress; (b) perceived general health and alcohol use; (c) perceived general health and relationship quality with spouse; and (d) perceived general health and relationship quality with children. Specifically, as sense of community belonging increases, the effect of low perceived general health on strain outcomes will decrease.

Method

Participants and Procedure

This study is based on archival data obtained from the Director General Military Personnel Research and Analysis at DND, and as such all information related to the participants and procedure in this study was provided to the researcher by the organization.

Electronic invitations to participate in the “Military Community Wellness Survey” were sent to 4,700 Regular Force CAF members at three military bases (Petawawa, Halifax, and Cold Lake). A total of 317 individuals did not receive the invitation due to a discontinued e-mail address or due to being on leave during the period in which the survey was online, leaving a usable sample of 4,383. A total of 888 responses were received, yielding an overall adjusted response rate of 20%.

Seventy-six percent of the participants were men and 24% were women. The age of the survey participants ranged from 20 to 59 with a mean of 38.00 years ($SD = 8.60$).

In terms of rank, 45% of the surveyed service members were Junior Non-Commissioned Members, Senior Non-Commissioned Members represented 32% of the sample, 13% were Junior Officers, and 9% were Senior Officers. Approximately 74% of the participants were married or in common-law relationships. Among participants, 347 (39%) were CAF members who reported being diagnosed with at least one mental health and/or physical injury. See Table 1 for pertinent demographic information.

The survey was granted ethical approval by the Department of National Defence (DND) Social Science Research Review Board². The first page of the survey explained its purpose (i.e., “to examine the wellness of the military community as well as to obtain views on the factors that play important roles in the well-being of families”), and participants were assured that participation was entirely voluntary and that they were free not respond to any question they were not comfortable answering. Participants were also informed that their responses would be anonymous and confidential and that results would only be reported in aggregate. The survey took approximately one hour to complete. The survey could be completed online in either English or French.

² The Social Science Research Review Board is the institutional Research Ethics Board (REB) that ensures that all research meets the highest ethical standards, and the greatest protection is provided to participants who serve as research subjects (National Defence and the Canadian Armed Forces, 2014).

Table 1

Study 1 Sample Demographics

Variable	N	Range	M	SD
Age	888	20-59	38	8.60
Relationship	657	1 year - 36 years	12.73	8.20
Injured			Valid Percent	
Yes	347		39.1	
No	541		60.9	.
Gender				
Male	677		76.2	
Female	211		23.8	
Rank				
Junior NCM	402		45.3	
Senior NCM	287		32.3	
Junior Officer	118		13.3	
Senior Officer	81		9.1	

Measures

Injury. Respondents were presented with a list of physical and mental conditions and asked to indicate if they had been diagnosed by a health professional for conditions that have lasted 6 months or more. They were also asked if they have taken prescription medication over the last month for the diagnosed conditions. For purposes of the current study, respondents diagnosed with musculoskeletal injuries (e.g., arthritis and back problems) and mental illness (e.g., anxiety, mood disorders, depression, and PTSD) for

which they used prescription medication over the previous month were categorized as “injured”.

Perceived general health. Perceived general health was measured with a one-item question, “Would you say your general health is:...” The responses for this question ranged from 1 (“Poor”) to 5 (“Excellent”).

Satisfaction with health care. For the purposes of this survey, a scale was constructed consisting of 4 items concerning the individual’s satisfaction with their health care. Respondents were asked to rate several dimensions of health care received (e.g., “The quality of the overall health care you received”, “The availability of the health care services in the CF in general”). Responses ranged from 1 (“Poor”) to 4 (“Excellent”). The Cronbach’s alpha for this scale was .87.

Satisfaction with career. Overall satisfaction with aspects of military career was assessed using thirteen items developed for this survey. Respondents were asked to indicate their level of satisfaction with several dimensions of career satisfaction (e.g., “Recognition you receive from your supervisor”, “Opportunities for professional development.”). Responses ranged from 1 (“Completely unsatisfied”) to 7 (“Completely satisfied”). This scale had a strong internal consistency, with a Cronbach’s alpha of .93.

Sense of community belonging. Sense of community belonging for military members was measured using an adapted version of the Community Commitment and Strength of Social Ties Scale (Sirgy, Widgery, Lee, & Yu, 2010). The scale is comprised of 8 items concerning aspects of community belonging (e.g., “You participate in the military community on your base,” “You made good friends with other military community members”). Respondents were asked to rate the degree of agreement with

each using a 4-point scale ranging from 1 (“Not at all”) to 4 (“To a great extent”). The Cronbach’s alpha for this scale was .83.

Psychological distress. Psychological distress was measured using the Kessler Psychological Distress Scale (K10) (Kessler et al., 2002). The K10 is a validated tool, which has been used in a number of large population health surveys (e.g., CCHS). The scale is comprised of 10 statements reflecting symptoms of distress (e.g., “Tired out for no good reason,” “So nervous that nothing could calm you down.”). Respondents were asked to rate how often they have experienced each using a 5-point scale ranging from 1 (“None of the time”) to 5 (“All of the time”). This scale had a strong internal consistency, with a Cronbach’s alpha of .94.

Alcohol use. Alcohol use was measured with the Alcohol Use Disorder Identification Test (AUDIT) scale (Allen, Litten, Fertig, & Babor, 1997). The AUDIT is a screening tool for early detection of hazardous drinking and related problems, including adverse psychological reactions. There are ten items that comprise three factors considered to reflect hazardous drinking patterns: 1) quantity and frequency of alcohol consumption, 2) alcohol-related problems, and 3) dependence symptoms (e.g., “How often do you have a drink containing alcohol”, “How often during the past year have you failed to do what was normally expected of you because of your drinking”). The 10 items are scored on a 0 to 4 ordinal scale with a range of 0 to 40. Higher scores indicate an increased probability of alcohol problems, and a cut-off score of 8 is generally used to detect problems with alcohol use. Scoring involves adding up the response range of the items from 0 to 4. The Cronbach’s alpha for this scale was .77.

Relationship quality. Relationship quality was measured using an adapted form of the Quality of Marriage Index (Norton, 1983). The scale is comprised of 6 statements concerning the extent to which respondents are happy in their relationship (e.g., “I have a good marriage/relationship”, “Everything considered, there could not be more happiness in our marriage/relationship”). Respondents were asked to rate their level of agreement with each using a 5-point scale ranging from 1 (“Strongly disagree”) to 5 (“Strongly agree”). This scale had a strong internal consistency, with a Cronbach’s alpha of .98.

Relationship with children. For the purposes of this survey, a scale was constructed consisting of 4 items concerning the individual’s relationship with their child(ren) (e.g., “I have spent quality time with my child(ren)”, “I have been critical and disapproving of my child(ren)”). Responses range from 1 (“Never”) to 5 (“Very often”). The Cronbach’s alpha for this scale was .71.

Results

Preliminary Analyses

Descriptive statistics were examined for each variable to ensure that all scale scores were within the expected range, and that scale means and standard deviations were plausible (Tabachnick & Fidell, 2013). Individual data points were considered to be statistical outliers if they deviated more than three standard deviations from the mean score on each variable. Identified outliers were winsorized to equal the highest response value that was within the bounds of three standard deviations above the mean value of the variable (Tabachnick & Fidell, 2013). Less than 2% of values were missing within each scale item, and therefore all cases were included in the analyses. In the case of missing items within a scale, the scale total was calculated using the average of the other items.

Analyses revealed that three variables had values for skewness or kurtosis that did not fall within the -1 to $+1$ range. However, no extreme cases of skewness and kurtosis were found (all skewness coefficients were less than an absolute value of 2 and all the kurtosis coefficients were less than an absolute value of 4; Field, 2009; Gravetter & Wallnau, 2008). The mean, standard deviation, skewness, and kurtosis values for each scale are presented in Table 2.

Table 2

Study 1 Descriptive Statistics

Scale	Possible Scale Range	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Perceived general health	1-5	3.36	0.92	-0.24	-0.16
Satisfaction with health care	1-4	2.75	0.70	-0.33	-0.23
Satisfaction with career	1-7	4.55	1.16	-0.35	-0.30
Sense of community belonging	1-4	2.57	0.68	-0.26	-0.17
Psychological distress	1-5	1.79	0.80	1.52	2.18
Alcohol use	0-40	4.92	3.69	1.48	2.11
Relationship with spouse	1-5	4.17	1.00	-1.44	1.79
Relationship with children	1-5	4.04	0.71	-0.86	0.78

Correlation Analysis

Prior to testing the moderation hypotheses, correlations between study variables were assessed (see Table 3). The injury measure was significantly negatively correlated with perceived general health, sense of community belonging, satisfaction with health care, and satisfaction with career indicating that non-injured members reported higher levels of general health, satisfaction with health care, satisfaction with career, and sense

of community belonging. Furthermore, the injury measure was positively correlated with psychological distress, indicating that injured members reported higher psychological distress. The injury measure was negatively correlated with relationship with spouse and children, indicating that injured members reported lower relationship quality with their spouses and children. Satisfaction with career and sense of community belonging were significantly positively correlated ($r = .51, p < .001$), while psychological distress and satisfaction with career were significantly negatively correlated ($r = -.48, p < .001$). There were significant associations among outcome variables; higher psychological distress was associated with higher alcohol use, and both psychological distress and alcohol use are negatively associated with relationship with spouse and children.

Table 3

Study 1 Correlation Table

Variable	1	2	3	4	5	6	7	8	9	10
1. Age	-									
2. Gender	.14**	-								
3. Injury	.16**	-.03	-							
4. Perceived general health	-.12**	-.07*	-.28**	-						
5. Satisfaction with health care	.10**	-.02	-.08*	.27**	-					
6. Satisfaction with career	.12**	.02	-.20**	.38**	.36**	-				
7. Sense of community belonging	.13**	.08*	-.10**	.26**	.22**	.51**	-			
8. Psychological distress	-.12**	-.03	.23**	-.37**	-.17**	-.48**	-.43**	-		
9. Alcohol use	-.21**	.10**	.00	-.16**	-.18**	-.18**	-.13**	.24**	-	
10. Relationship with spouse	.03	-.02	-.08*	.19**	.11**	.14**	.17**	-.22**	-.12**	-
11. Relationship with children	-.14**	-.04	-.18**	.20**	.08	.18**	.17**	-.25**	-.11*	.17**

Note: Gender: 0 = female, 1 = male; Injury: 0 = non-injured, 1 = injured

* $p < .05$.

** $p < .01$

Group differences

A series of independent samples t-tests were computed to test if there were differences between injured and non-injured groups on any of the main (moderator and dependent) variables (see Table 4). The average scores on satisfaction with health care, satisfaction with career, sense of community belonging, psychological distress, alcohol use, relationship with spouse and relationship with children are presented for both groups. There were significant differences between injured and non-injured groups on all variables except alcohol use. Injured members had a lower mean score for satisfaction with health care, satisfaction with career, sense of community belonging, relationship with spouse, and relationship with children, while they had higher scores on psychological distress.

Table 4

Study 1 Results of t-test and Descriptive Statistics by Groups

	Injured <i>n</i> = 347	Non-Injured <i>n</i> = 541	<i>t</i>
Satisfaction with health care	2.68 (0.71)	2.79 (0.69)	-2.31*
Satisfaction with career	4.26 (1.17)	4.73 (1.12)	-6.05**
Sense of community belonging	2.49 (0.68)	2.62 (0.67)	-2.91**
Psychological distress	2.02 (0.89)	1.64 (0.70)	6.60**
Alcohol use	4.91 (3.79)	4.93 (3.63)	-0.08
Relationship with spouse	4.08 (1.02)	4.23 (0.98)	-2.09*
Relationship with children	3.89 (0.72)	4.15 (0.68)	-4.10**

* $p < .05$.** $p < .01$.**Moderated Regression**

To test the hypotheses, moderator analyses were conducted using Hayes PROCESS macro (Hayes, 2013). This analysis allowed estimation of the bias-corrected coefficients from a series of 5000 bootstrap samples (see Preacher, Rucker, & Hayes, 2007). For each moderator analysis, age, rank and sex were included as covariates given their significant correlation with some outcome variables and/or demonstrated importance in previous research. Since the focus of these analyses was on understanding the impact of injury on personal outcomes, these analyses were conducted using injured individuals only.

Moderation of the Relationship Between General Health and Psychological

Distress. To test the hypothesis that satisfaction with health care, satisfaction with career and sense of community belonging moderated the relationship between perceived general health and psychological distress, three moderation analyses were conducted.

First, in terms of satisfaction with health care as a moderator of the relationship between perceived general health and psychological distress, the data showed that while the overall model explained 18% of the total variance in psychological distress ($R^2 = .18$, $p < .001$, $F(6, 334) = 12.01$, $p < .001$), the interaction was not significant (see Table 5). Second, the analysis of satisfaction with career as a moderator of the relationship between perceived general health and psychological distress showed that while the overall model explained 30% of the total variance in psychological distress ($R^2 = .30$, $p < .001$, $F(6, 336) = 23.93$, $p < .001$), the interaction was not significant (see Table 5). Last, in terms of sense of community belonging as a moderator of the relationship between perceived general health and psychological distress, the data showed that while the overall model explained 28% of the total variance in psychological distress ($R^2 = .28$, $p < .001$, $F(6, 336) = 22.27$, $p < .001$), the interaction was not significant (see Table 5).

Table 5

Study 1 Moderation Analyses of the Relationship between General Health and Psychological Distress

Path	Estimate	SE	p	95% CI Lower, Upper
General Health → Distress	-.37	.05	.00*	-.47, -.28
Health Sat. → Distress	-.02	.07	.79	-.15, .11
General Health X Health Sat. → Distress	.00	.07	.98	.13, -.13
General Health → Distress	-.24	.05	.00*	-.34, -.15,
Career Sat. → Distress	-.29	.04	.00*	-.36, -.21
General Health X Career Sat. → Distress	.05	.03	.13	-.01, .12
General Health → Distress	-.26	.05	.00*	-.36, -.17
Community Belonging → Distress	-.43	.06	.00*	-.56, -.30
General Health X Comm. Belonging → Distress	.10	.06	.10	-.01, .21

Note: Controlling for rank, sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

* = Significant at the 0.05 level (2-tailed)

Moderation of the Relationship between General Health and Alcohol Use. To test the hypothesis that satisfaction with health care, satisfaction with career and sense of community belonging moderated the relationship between perceived general health and alcohol use, three moderation analyses were conducted.

First, analysis of satisfaction with health care as a moderator showed that while the overall model explained 13% of the total variance in alcohol use ($R^2 = .13$, $p < .001$, $F(6, 300) = 7.54$, $p < .001$), the interaction was not significant (see Table 6). Next, analysis of satisfaction with career as a moderator indicated that the overall model explained 16% of the total variance in alcohol use ($R^2 = .16$, $p < .001$, $F(6, 302) = 9.23$, $p < .001$), and that

the interaction was significant, explaining an additional 2% of variance in alcohol use ($\Delta R^2 = .02$, $F(1, 302) = 7.13$, $p < .01$). To examine the nature of this relationship, the interaction was plotted using the simple main effects equation, utilizing values $\pm 1 SD$ above and below the mean (Field, 2009). Alcohol use was regressed on perceived general health at high, medium, and low levels of satisfaction with career. Figure 2 plots the simple slopes for the interaction. At low levels of career satisfaction the negative relationship between perceived general health and alcohol use is stronger than at average or high levels of career satisfaction. At high levels of career satisfaction, individuals report approximately the same level of alcohol use regardless of the level of perceived general health.

Lastly, analysis of sense of community belonging as a moderator of the relationship between perceived general health and alcohol use indicated that the overall model explained 14% of the total variance in alcohol use ($R^2 = .14$, $p < .001$, $F(6, 302) = 8.39$, $p < .001$), and that the interaction was significant, explaining an additional 2% of variance in alcohol use ($\Delta R^2 = .02$, $F(1, 302) = 5.41$, $p < .05$). To examine the nature of this relationship, the interaction was plotted using the simple main effects equation, utilizing values $\pm 1 SD$ above and below the mean (Field, 2009). Alcohol use was regressed on perceived general health at high, medium, and low levels of sense of community (see Figure 3). At low levels of community belonging the negative relationship between perceived general health and alcohol use is stronger than at high levels of community belonging. At high levels of community belonging, individuals report approximately the same level of alcohol use regardless of the level of perceived general health.

Table 6

*Study 1 Moderation Analyses of the Relationship between General Health and Alcohol**Use*

Path	Estimate	SE	p	95% CI Lower, Upper
General Health→ Alcohol use	-.73	.25	.00*	-1.22, -.24,
Health Sat.→ Alcohol use	-.46	.33	.16	-1.11, .18
General Health X Health Sat. →Alcohol use	.01	.33	.97	-.64, .66
General Health → Alcohol use	-.56	.25	.03*	-1.06, -.06
Career Sat.→ Alcohol use	-.32	.21	.12	-.72, .08
General Health X Career Sat. → Alcohol use	.48	.18	.01*	.13, .84
General Health → Alcohol use	-.65	.25	.01*	-1.14, -.15
Community belong. → Alcohol use	-.16	.35	.65	-.86, .54
General Health X Community belong. → Alcohol use	.74	.32	.02*	.11, 1.37

Note: Controlling for rank, sex and age. 5,000 bootstrap resamples used to generate 95%

confidence intervals.

* = Significant at the 0.05 level (2-tailed).

Figure 2. Satisfaction with career as a moderator of the relationship between general health and alcohol use.

Note: Controlling for rank, sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Figure 3. Sense of community belonging as a moderator of the relationship between general health and alcohol use.

Note: Controlling for rank, sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Moderation of the Relationship Between General Health and Relationship with Spouse. To test the hypothesis that satisfaction with health care, satisfaction with career and sense of community belonging moderated the relationship between perceived general health and relationship with spouse, three moderation analyses were conducted.

First, analysis of satisfaction with health care as a moderator showed that while the overall model explained 6% of the total variance in relationship with spouse ($R^2 = .06$, $F(6, 273) = 3.12$, $p < .01$), the interaction was not significant (see Table 7). Next, in terms of satisfaction with career as a moderator, the data showed that while the overall

model explained 5% of the total variance in relationship with spouse, adding perceived general health and the satisfaction with career interaction term to the model did not significantly increase the model's ability to predict relationship with spouse (see Table 7). Lastly, analysis of sense of community belonging as a moderator showed that the overall model explained 8% of the total variance in relationship with spouse ($R^2 = .08$, $F(6, 274) = 4.01$, $p < .001$), but the interaction was not significant (see Table 7).

Table 7

Study 1 Moderation Analyses of the Relationship between General Health and Relationship with Spouse

Path	Estimate	SE	p	95% CI Lower, Upper
General Health → Spouse Relationship	.18	.07	.01*	.05, .32
Health Sat. → Spouse Relationship	.16	.09	.07	-.01, .33
General Health X Health Sat. → Spouse Relationship	-.02	.09	.84	-.19, .16
General Health → Spouse Relationship	.21	.07	.00*	.07, .35
Career Sat. → Spouse Relationship	.01	.06	.83	-.10, .13
General Health X Career Satisfaction → Spouse Relationship	-.03	.05	.54	-.14, .07
General Health → Spouse Relationship.	.16	.07	.02*	.03, .30
Community belonging → Spouse Relationship	.25	.10	.01*	.07, .44
General Health X Community belonging → Spouse Relationship	-.03	.09	.73	-.21, .15

Note: Controlling for rank, sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

* = Statistically Significant

Moderation of the Relationship between General Health and Relationship

with Children. To test the hypothesis that satisfaction with health care, satisfaction with

career and sense of community belonging moderated the relationship between perceived general health and psychological distress, three moderation analyses were conducted.

First, in terms of satisfaction with health care as a moderator of the relationship between perceived general health and relationship with children, the data showed that while the overall model explained 7% of the total variance in relationship with children ($R^2 = .07$, $F(6, 196) = 2.28$, $p < .05$), the interaction was not significant (See Table 8).

Second, the analysis of satisfaction with career as a moderator of the relationship between perceived general health and relationship with children showed that while the overall model explained 6% of the total variance in relationship with children ($R^2 = .06$, $F(6, 196) = 2.22$, $p < .05$), the interaction was not significant (See Table 8). Last, in terms of sense of community belonging as a moderator between perceived general health and relationship with children, the data showed that while the overall model explained 9% of the total variance in relationship with children ($R^2 = .09$, $F(6, 196) = 3.19$, $p < .01$), the interaction was not significant (See Table 8).

Table 8

Study 1 Moderation Analyses of the Relationship between General Health and Relationship with Children

Path	Estimate	SE	p	95% CI Lower, Upper
General Health → Child. Rlshp	.12	.06	.03*	.01, .23
Health Sat. → Child. Rlshp	.01	.07	.86	-.13, .16
General Health X Health Sat. → Child. Rlshp	.08	.07	.26	-.06, .22
General Health → Child. Rlshp	.12	.06	.04*	.01, .23
Career Sat. → Child. Rlshp	.04	.05	.45	-.06, .12
General Health X Career Sat. → Child. Rlshp	.02	.04	.65	-.06, .10
General Health → Child. Rlshp	.10	.06	.07	-.01, .21
Community belong. → Child. Rlshp	.20	.08	.02*	.04, .36
General Health X Community belong. → Child. Rlshp	.03	.08	.68	-.12, .18

Note: Controlling for rank, sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

* = Significant at the 0.05 level (2-tailed).

Discussion

The purpose of Study 1 was to examine how occupational injuries are related to the well-being and relationships of injured military members, and what conditions may exacerbate or mitigate these effects. The results indicate that occupational injuries are related to psychological well-being, relationship with spouse, and relationship with children, but not with alcohol use. Perceived general health among injured individuals had direct effects on members' psychological wellbeing, relationship with spouse, relationship with children, and alcohol use. Moreover, it appears that the effect of

perceived general health among injured individuals may influence more alcohol use when there is a lower sense of community belonging and lower career satisfaction. Contrary to expectations, satisfaction with career, satisfaction with health care and sense of community belonging, did not moderate the effect on perceived general health among injured individuals on psychological distress, relationship with spouse, and relationship with children.

Injured vs. Non-Injured: The Impact of Injury

In the past, research has focused on the antecedents of occupational injuries rather than the consequences. Further, the majority of the focus in the occupational injury domain has been on physical workplace injuries. Mental injuries at work are now recognized as a serious source of loss to employees, their families, and organizations (Shain & Nassar, 2009) as well as having a serious negative impact on one's well-being and the well-being of those around them (e.g., Barling & Frone, 2004; Schulz & Decker, 1985). As such, a more comprehensive understanding of the consequences of both physical and mental occupational injuries is necessary.

The overall findings are consistent with the conceptual model of work-family interface, in which stress caused by an occupational injury has "spilled over" into one's home and social environment, affecting relationships with spouses and children. With one exception (i.e alcohol use), the results from Study 1 supported the first proposed hypothesis. Injured individuals reported greater psychological distress and worse relationship with spouses and children than non-injured individuals. This effect can also be explained using the COR theory (Hobfoll, 1989), individuals experiencing a loss of resources, that is, loss of health caused by their occupational injury – experienced distress and stress in another domain. The COR model stipulates that as more stress is

experienced in one domain, fewer resources are available to fulfill one's role in another domain, therefore causing the individual to experience stress. This is consistent with past research on individuals with occupational injuries, suggesting that injured individuals reported significantly more psychological distress than non-injured individuals (Schulz & Decker, 1985, Barling & Frone, 2004).

Alcohol use was not found to be significantly different between injured individuals and non-injured individuals. It is important to consider the population that this study is drawing from when interpreting these findings. Alcohol use has been argued to be widespread in the military (Thériault, Gabler, & Naicker, 2016), and therefore, it may be that the baseline alcohol intake for military members is higher than the average population. Thus, the potential increase of consumption between injured military members and non-injured military members is so slight that it is not significant. Indeed, a recent study has shown that alcohol use in the past 12 months is more prevalent among Regular Force CAF members (94.2%) compared to the general Canadian population (76%) (Thériault, Gabler, & Naicker, 2016). Furthermore, it is also possible that injured individuals will use more alcohol under certain conditions and that these relationships are more nuanced. This speculation will be discussed later in this section.

Perceived General Health

It has been suggested that the outcomes of injuries should be examined beyond the perspective of an injury as binary (i.e., injured or not injured) to include severity (Dupré & Barling, 2015). Moreover, the severity in this study was operationalized as subjective assessment rather than objective measure, because there is sufficient evidence to suggest that people assess their health in relation to their circumstances and

expectations. This is a better predictor of outcomes such as help-seeking behaviours and health service use (Shields & Shooshtari, 2001). Overall, injured members who reported worse general health also reported experiencing more psychological distress, more alcohol use and worse relationship with spouse and children. This is in line with the limited literature, and my hypotheses. It is of interest that injured and non-injured members did not differ on alcohol use, while perceived general health did predict alcohol use. This finding points out that it was not simply the presence of injury, but the overall health of injured that needs to be examined further to achieve a true image of the impact of occupational injuries on personal and familial consequences. This measure of occupational injuries provides a more detailed overall picture of the effects experienced by injured individuals, and provides an important first step towards better understanding of those widespread effects. Future research should continue to include more nuanced measures of injury when studying workplace injuries.

Satisfaction with Health Care

It has been found that injured workers who reported less-favourable medical treatment experience recovery at a slower rate, compared to patients whose treatment experience was more positive (Wickizer et al., 2004). Satisfaction with health care was not found to be a significant moderator between perceived general health and any outcomes. It is important to note that in Canada, the military population receives health care from the Department of National Defence and Canadian Armed Forces by health care practitioners who are members of the military, or the public service. Indeed, failings of the Canadian provincial health care systems have been well documented and publicized (Skinner, 2009), so it is possible that military members are cognizant and

aware that they are in the fortunate position to receive health care from a different source. This is relevant possibly because military members have become accustomed to easy access and a certain level of care, that is, potentially higher than that of the non-military population of Canada. Indeed, one significant stressor for service members prior to being released is about the medical coverage and services they will be able to access once they are released. Findings from a recent survey reported that finding a health care provider was identified as a top challenge by new CAF veterans (Statistics Canada, 2018). Since all injured military members receive their health care from the same service providers, it is possible that there is less variability in their satisfaction. It is of interest to point out that while satisfaction with health care among injured members did not have an effect on the outcomes, non-injured members did report higher satisfaction with health care when compared to injured members. It seems that the more interaction one has with medical services, the less satisfied they are.

Satisfaction with Career

Past research has suggested that poor supervisory and organisational support is increasingly recognised as a significant psychosocial barrier contributing to injury outcomes (Cotton, 2006). Also, it has been found that job satisfaction determines the psychosocial response a person may have to an injury (Brewin, Robson, & Shapiro, 1983). Based on past literature and COR theory, I hypothesized that satisfaction with career would moderate the relationship between perceived general health and strain outcomes. Specifically, I hypothesized that as satisfaction with career increases, the effect of the low general health on strain outcomes will decrease.

Satisfaction with career significantly moderated the relationship between perceived general health and alcohol use. At high level of general health, alcohol use is stable and low regardless of satisfaction with career. The greatest alcohol use is among those individuals with low general health and low career satisfaction. This is in line with the main points of the COR theory (Hobfoll, 2001). As individuals experience a loss of a personal resource such as their health, as well as experiencing a loss of a contextual resource, specifically, their satisfaction with their career, it may have a compounding effect on an individual's stress levels. This is in line with past research that found that job satisfaction can moderate mental health outcomes of an individual's injury (Brewin, Robson, & Shapiro, 1983).

Satisfaction with career had a direct significant effect on psychological distress, in which the higher an individual's career satisfaction, the lower their psychological distress. While satisfaction with career was positively correlated with relationship with spouse and relationship with children for the entire sample (including non-injured members), it did not have a direct effect on those variables for the injured sample. It is possible that relationship with spouse and relationship with children are more impacted by some other intervening variables when looking only at injured individuals.

Sense of Community belonging

Based on COR theory, I hypothesized that as individuals experience a loss of a personal resource such as their health, another contextual resource, such as community belonging can have an important buffering effect that can reduce stress and psychological distress.

Community belonging was found to be significant in moderating the relationship between perceived general health and alcohol use. When looking at the plotted interactions (Figure 3), it is evident that community belonging is especially protective for individuals with low general health. It does not appear to have as large of an effect on those with average general health; however, at high general health the effect is reversed. It is possible that a higher sense of community belonging goes hand in hand with higher alcohol use for the generally healthy population. As stated previously, alcohol consumption is common for military populations and potentially if an individual feels they belong to their community, it might be related to spending time with other military members in social settings, consuming alcohol. The amount of alcohol use among those with high general health is at a much lower level overall compared to those with a low general health. If an injured individual with low general health has a strong sense of community belonging, they consume less alcohol, so it appears that sense of community is a social support resource that promotes healthy behaviour and reduces their alcohol use. This is a very positive finding, since alcohol use by injured individuals might have serious health determinants, as it may interfere with their recovery as well as interact with any medications that they may be using. Unfortunately, it seems that the severely injured members with a low sense of community belonging may feel isolated and use alcohol as a self-medication and coping strategy.

While community belonging did not affect the relationship between general health and relationship with spouse and children, it was a marginally significant moderator ($p=.10$) for the relationship between perceived general health and psychological distress. This was consistent with findings that sense of community belonging moderates the

effect of stress on depression (Choenarom, Williams, & Hagerty, 2005). This was also in line with research showing that a sense of community belonging acted as a protective factor that was associated with easier adjustment to civilian life for Veterans with physical health conditions, mental health conditions, and higher levels of life stress (Hachey et al., 2016).

It was found that sense of community belonging contributed to injured members' psychological distress, relationship with spouse and relationship with children, regardless of the perceived general health. The absence of significant interaction effects between perceived general health and community belonging suggests that sense of community belonging does not need to be mobilized by perceived general health to be effective. In a sense, main effects could be more important than buffering effects because they always offer benefits (Rees, Hardy, & Freeman, 2007). These findings are in line with previous research that a sense of community belonging is positively related to self-reported health (Ross, 2002; Shields, 2008) and positive health-behaviours such as diet and exercise (Hystad & Carpiano, 2009). Community belonging was also found to be significant in predicting higher quality of relationship with spouse as well as higher quality of relationship with children. Possible reasons for this could be that spending time with others and having strong social ties outside immediate family increases overall happiness and quality of life which affects ones' relationships at home. Since this study is cross-sectional, it is also possible that community belonging does not cause better relationships with one's spouse and children, but those who actively seek out their community and receive support from their colleagues are also actively working towards their relationships at home as well.

Finally, this study found that non-injured members reported a higher sense of community belonging compared to injured members. It is possible that sense of military community belonging is impacted by injuries and possible time away from work required for rehabilitation and recovery. Given the associations of community belonging with well-being outcomes, it would be important to seek ways to promote community belonging among injured service members.

Overall, these findings provide a greater understanding of the outcomes associated with workplace injuries in a military context. The goal of study 2 is to extend these findings by looking at how workplace injuries might influence those in close relationships with injured military members.

Study 2 – Spouses of Injured Military Members

Proposed Relationships

Although there is evidence that work affects the personal lives of employees' families (e.g., Bellavia & Frone, 2005; Mortimer, Lorence, & Kumka, 1986), and some research on how injuries at work affect the personal lives of those who are injured, there is very little research on how workplace injuries affect the family members of those who have experienced occupational injuries. Evidence suggests that the injuries of military members have practical and emotional consequences not only the injured individuals but also for family members in their environment such as spouses and children (Nelson-Goff & Smith, 2005). Figure 4 presents the proposed relationships between spousal injury, contextual resources, and personal outcomes. The goal of this study is to extend previous research by examining the moderating role of the contextual resources (i.e. perceived organizational support, satisfaction with organization, and financial strain) on the

relationship between spousal injury and the personal outcomes of psychological distress, relationship with spouse, and IPV (Figure 4).

Figure 4. Proposed relationships between spouses' stress, contextual resources, well-being and familial relationship.

The Assessment of Spousal Injuries

For those Canadian Armed Forces (CAF) members who have a medical condition that limits their full involvement in their occupation, there are important support mechanisms in place, including the existence of a CAF unit that focuses on their needs. The Joint Personnel Support Unit (JPSU) “provides personal administrative support and programs to ill or injured CAF members of the Regular and Reserve Force who have a medical condition that precludes them from returning to their normal place of duty for a period of six months or more” (DND, 2018). The support unit provides access to available benefits, programs, and family services, allowing ill and injured CAF members and their families to focus on recovery and reintegration. In this study, spousal injury was indicated by an individual (military partner) being posted to the JPSU.

Consequences of injuries on spouses

Given previous research, the present study focused on understanding the impact of spousal injury on one's psychological distress, relationship with spouse, and experience of IPV.

Psychological distress. The connection between veterans' health and the well-being of their families has been suggested (e.g., Manguno-Mire et al., 2007). Moreover, previous research indicates a level of persistence in the impact of injuries on familial stability. Family processes were affected not only in the immediate aftermath of the injury but also during recovery, affecting long-term relationships among spouses and between children and parents as well (Cozza & Guimond, 2011).

Several studies have noted that spouses of injured veterans report more psychological distress than partners of non-injured veterans (Dirkzwager, Bramsen, Ader, & van der Ploeg, 2005; Jordan et al., 1992). A qualitative study of partners of Australian veterans with PTSD described the home as a war zone, with the largest negative impact being on their mental health (Outram, Hansen, Macdonell, Cockburn, & Adams, 2009). A cross-sectional study found a high degree of psychological distress, including depression and suicidal ideation among spouses of veterans diagnosed with PTSD (Manguno-Mire et al., 2007). Specifically, Manguno-Mire et al. (2007) concluded that 90% of spouses reported psychological distress and 15% of spouses reported having suicidal ideations.

Partners of injured veterans reported internalizing their veteran spouses' symptoms of PTSD, and experienced increased caregiver burden as a result of balancing multiple roles (Dekel, Goldblatt, Keidar, Solomon, & Polliack, 2005). As well, close and

maintained contact with an injured veteran may serve as a chronic source of distress, which over time can result in symptoms of distress manifesting among the non-injured partner who takes on a caregiver role (Ohaeri, 2001). Specifically, some behavioural symptoms of PTSD can be significant stressors for the spouse and family. Galovski and Lyon (2004) concluded that previous research with spouses of veterans with PTSD identified two particular stressors that contribute to the spouses' distress and poor psychological well-being: angry outbursts on the part of the veteran and the veteran's emotional numbing/interpersonal withdrawal. These subsequent emotions and behaviours have been referred to in the literature as secondary traumatization (Arzi, Solomon, & Dekel, 2000; Bride & Figley, 2009; Dekel & Solomon, 2006). Spouses whose military partners have been diagnosed with severe psychopathology are at risk for secondary traumatization, which may occur through the sharing of traumatic experiences, or through interpersonal violence or aggression (Galovski & Lyons, 2004).

Relationship with spouse. It is expected that ill/injured individuals are likely to depend on their spouses for assistance and support. Over time, the extra burden of caretaking, the extra household chores and possible emotional demands and outbursts may take a toll on the relationship with the spouse. There is evidence that injuries can negatively influence marital relationships and lead to divorce (e.g. Arango-Lasprilla et al., 2010). Both, physical and mental health injuries have been found to adversely affect marital relationships. Studies of depressed individuals have indicated that their marriages are consistently characterized by negativity and conflict (Beach, Whisman, & O'Leary, 1994). A qualitative study of workers with occupational back injuries found that the additional roles assumed by their spouses combined with the injured workers' moods and

temper were described as causing a strain in their marital relationships (Strunin & Boden, 2004). It was pointed out that chronic pain, physical vulnerability, depression, and anger interfered with joint activities, intimacy, and sexual relations. Some of the conflicts were also related to gender role responsibility reversals, with women more likely than men to talk about their spouses' dislike of the change caused by the role reversal and role imbalance (Strunin & Boden, 2004).

Caregiving studies have shown that a significant proportion of partners of individuals with injuries such as spinal cord injury (SCI) suffer from serious burden (e.g., Post, Bloemen, & Witte, 2005). Several studies have shown negative effects of caregiving on the quality of life of spouses of individuals with SCI (Chan, 2000; Weitzenkamp, Gerhart, Charlifue, Whiteneck, & Savic, 1997). Similarly, studies of TBI patients found that the changes in roles and the need to provide care to the injured person can contribute to radical changes in the relationship (Rieger, 2015). Further, the provision of personal care by female partners of those who suffered a severe head injury, and the experience of being in a caregiver/care-recipient relationship, also interferes with sexual feelings (Gosling & Oddy, 1999). Interestingly, the healthy spouses rated their current marital satisfaction as significantly less than their brain-injured partners (Gosling & Oddy, 1999). Due to the disabilities experienced by partners with TBI and possibly due to their self-centeredness and unresponsiveness to the needs of the spouse, it has been suggested that the spouses can no longer confide in, or seek support from the person with the TBI, which significantly deteriorates their relationship (Rieger, 2015).

Psychological distress of the spouses of mentally injured military members has been linked to specific symptoms experienced by injured members. Specifically, it has

been found that soldier avoidance (such as avoiding conversations and thoughts related to the trauma) is related to spousal distress, while soldier numbing symptoms are related to relationship challenges such as reported emotional intimacy and mutual communication (Erbes, Meis, Polusny, & Compton, 2011). Although military families dealing with injuries are expected to be able to cope effectively with the stressors, it is not surprising that some may have difficulty adjusting, which contributes to poor marriage quality. Indeed, some administrative data from the Army specifically show an overall increase in the number of divorces since the start of the wars in Iraq and Afghanistan (Cotton, 2009).

Experience of IPV. Dembe (2001) has included violence in the list of the possible social consequences of occupational injuries. It has also been suggested that military members diagnosed with a mental disorder are significantly more likely to perpetrate violence toward their partners, with 80% committing at least one act of violence in the previous year; this was reported to be more than 14 times higher than the general civilian population (Hall, 2016). Marshall and colleagues (Marshall, Panuzio, & Taft, 2005) found that female military spouses reported significantly higher rates of violence than demographically matched civilian spouses. It has also been reported that domestic violence affects 20% of military couples in which the member has been deployed for at least 6 months (Booth, Segal, & Bell, 2007). Previous research suggests that development of trauma-related psychopathology in military members puts their spouses at higher risk of IPV (Jordan et al., 1992; Orcutt, King, & King, 2003; Riggs, Byrne, Weathers, & Litz, 1998). It has been suggested that hyperarousal symptoms (e.g., increased anger and impulsivity) and affected information processing resulting from some injuries, such as PTSD and TBI may account for the relationship between mental

illnesses and IPV (Taft, Walling, Howard, & Monson, 2011). Given the detrimental negative effects of experiencing IPV, this construct was included as an outcome in Study 2, along with measures of well-being and relationship quality. Based on this related research, it is expected that psychological well-being, satisfaction with life, relationship with injured spouses and IPV will be negatively affected by the amount of stress experienced by the spouses of injured military members.

While compassion stress and caretaking responsibilities may place spouses at higher risk for negative outcomes such as lower psychological well-being, and even IPV, some military spouses are less affected than others. There are many factors that can buffer or mitigate the effects of stressors related to injuries among spouses of injured military members.

Moderating Factors

Similar to Study 1, moderating resources are a critical element of any model of the stress process, because the stressors alone usually do not explain their consequences; that is, people exposed to the same stressor may experience very different outcomes (Pearlin, Lieberman, Menaghan, & Mullan, 1981). Therefore, in this study, I focused on identifying the contextual resources that moderate the relationship between the member's injury and personal outcomes.

Perceived organizational support. Organizational support represents a major contextual resource that can reduce stress and burnout (Halbesleben, 2006). Given that organizational support can be considered a valued resource (e.g., Marchand & Vandenberghe, 2016; Panaccio & Vandenberghe, 2009) that helps buffer against stressors and burnout (e.g., Kurtessis et al., 2015), it is reasonable to expect that this resource

might be especially relevant while one is dealing with occupational injuries. Perceived organizational support from the military could be an important resource for military spouses as they are coping with stressors related to caring for injured military members. It has been found that among military spouses, there is a positive relationship between perceived organizational support for families and overall level of satisfaction with the military (Bowen, 1990).

A qualitative study of spouses of military members identified key impacts on well-being, and ways support for families could be improved. Specifically, it was suggested that supporting agencies need to ensure appropriate support for different types of families, and for different stages of life (Runge, Waller, MacKenzie, & McGuire, 2014). In line with this are the findings that spousal perception of unit support and satisfaction with services are positively associated with family outcomes (Pittman, Kerpelman, & McFadyen, 2004). In another study of military spouses, perceived unit support was strongly associated with an increased sense of community, which in turn predicted family adaptation (Bowen, Mancini, Martin, Ware, & Nelson, 2003).

Research on the role of organizational support in buffering the effects of stressors on spouses of injured individuals is very limited. A qualitative study of spouses of individuals with spinal cord injuries found that social support and positive venting of emotions are related to positive outcomes (Dickson, Ward, O'Brien, Allan, & O'Carroll, 2011). Also, it has been shown that social support is an important moderator in the relationship between perceived stress and decreased well-being of spouses of individuals with brain injuries (Chwalisz, 1996). Many spousal caregivers feel abandoned by extended family and friends when they can no longer participate in social activities they

once enjoyed (Chwalisz, 1992). These circumstances amplify the role that organizational support can play in moderating the effects of the stressors on spousal well-being. It is expected that the extent to which spouses perceive they can depend on the military organization for support, could buffer the effects of injury on the spouses' well-being.

Satisfaction with Organization. The role of satisfaction with organization in buffering the effects of stressors on the spouses of injured individuals is very limited. There is research showing that spousal perception of unit support and satisfaction with services are positively associated with family outcomes (Pittman, Kerpelman, & McFadyen, 2004). In general, research with military spouses has indicated that spouses' satisfaction with military life was associated with their own more positive psychological well-being (Burrell, Adams, Durand, & Castro, 2006). It is expected that the extent to which spouses are satisfied with the organization could buffer the effects of injury on the spouses' well-being.

Financial strain. In general, financial difficulties are an important factor related to occupational injuries that may influence an individual's family as a whole. Financial strain has been suggested as a factor that may influence outcomes of occupational injuries (Dembe, 2005). Although serving military members receive full pay while dealing with injuries, the prospect of the possible release from the military would have potentially huge financial consequences for families. It is common in military families for spouses to be underemployed and underpaid due to frequent postings across the country (Maury & Stone, 2014). Indeed, controlling for key socio-demographic variables (e.g., age, education, etc.), it was found that CAF spouses were more likely to be unemployed and earn lower average income compared to spouses in non-military families (Dunn, Urban,

& Wang, 2010). It is very likely that a severely injured member will contribute less to household responsibilities and childcare. In these situations it is possible that the healthy spouse may need to take on more responsibilities, either household related or providing care to the injured spouse. These demands on a healthy spouse might have consequences for their own employment (e.g., need to work less hours or convert to part-time). It is also possible that the family might need to hire additional help since one parent is not able to carry out regular household chores. These would contribute to additional financial demands on the family. Indeed, large losses have led families of injured workers having to borrow money, sell their cars, downsize housing, and /or spend their savings (Keogh et al., 2000; Morse, Dillon, Warren, Levenstein, & Warren, 1998).

Hensler and colleagues (1991) found that 40% of injured workers claimed to have significantly reduced the time they spent on their household, and 11% reported being unable to do any household work at all; it was the family that had to compensate for the household chores. They also reported that a substantial number of injured workers required care during recovery, increasing time demands on other family members. A similar study of work-related occupational injury found that almost half of the respondents had to reduce household activities (Morse et al., 1998). It has been proposed that today's families are already living with limited free time and resources, so any additional financial burden could be a great risk for a family's well-being (Boden, 2005). When considering military samples specifically, caregivers of military service members and veterans with TBI and polytrauma (multiple traumatic injuries) reported high levels of financial strain: 62% reported depleted assets and/or accumulated debt and 41% of workers left the labor force entirely (Griffin et al., 2012). The findings discussed above

suggest that one family member has the potential to influence others through his or her work experiences.

Based on the discussion above, I proposed the following relationships:

Hypothesis 1: Spouses of injured military members will report higher psychological distress, lower relationship quality (quality of marriage) and higher IPV, compared to spouses of non-injured military members;

Hypothesis 2: Perceived organizational support will moderate the relationship between (a) spousal injury and psychological distress; (b) spousal injury and relationship quality (quality of marriage); (c) spousal injury and IPV. Specifically, as perceived organizational support increases, the effect of spousal injury on strain outcomes will decrease.

Hypothesis 3: Satisfaction with organization will moderate the relationship between (a) spousal injury and psychological distress; (b) spousal injury and relationship quality (quality of marriage); (c) spousal injury and IPV. Specifically, as satisfaction with organization increases, the effect of spousal injury on strain outcomes will decrease.

Hypothesis 4: Financial strain will moderate the relationship between (a) spousal injury and psychological distress; (b) spousal injury and relationship quality (quality of marriage); (c) spousal injury and IPV. Specifically, as financial strain increases, the effect of spousal injury on strain outcomes will increase.

Method

Participants and Procedure

This study is based on archival data obtained from the Director General Military Personnel Research and Analysis at DND, and as such all information related to the participants and procedure in this study was provided to the researcher by the organization. The “Quality of Life Among Military Families” survey was mailed to the home addresses of the 9,359 Canadian Armed Forces (CAF) spouses. The sampling frame included CAF spouses whose military partners were posted to Joint Personnel Support Unit (JPSU), ($N = 529$). The surveys could not be delivered to 1,062 home addresses, resulting in a final eligible sample of 8,297. A total of 1,836 spouses responded, yielding an adjusted response rate of 22%.

Nine percent of the participants were men and 91% were women. This is approximately reflective of the population that is being drawn from. The age of the survey participants ranged from 19 to 63 with a mean age of 39 years ($SD = 8.93$). Among the participants, 110 (6.6%) were CAF spouses who reported that their spouse (CAF member) was currently posted to the JPSU - the unit that provides administrative support and programs to ill or injured CAF members. See Table 9 for pertinent demographic information.

The survey was granted ethical approval by the DND’s Social Science Research Review Board. The first page of the survey explained its purpose (i.e., “the information will be used to inform policies, programs, and services to support our military families, and will enable us to understand the impact of military service on family members’ quality of life”), and participants were assured that participation was entirely voluntary

and that they were free to not respond to any question they were not comfortable answering. Participants were also informed that their responses would be anonymous, confidential, and that results would only be reported in aggregate. The survey took about one hour to complete. The survey could be completed in either English or French, on paper or electronically.

Table 9

Study 2 Sample Demographics

Variable	<i>N</i>	Range	<i>M</i>	<i>SD</i>
Age	1836	19-63	39.06	8.93
Valid Percent*				
Spouses of Injured Member (posted to JPSU)				
Yes	110		6.6	
No	1553		93.4	
Valid Percent*				
Gender				
Male	157		8.7	
Female	1640		91.3	

* Several participants did not indicate their age, gender and JPSU status

Measures

Spousal Injury. Respondents were asked if their military spouse is currently posted to a Joint Personnel Support Unit. Those who said “Yes” were designated as the spouse or partner of an injured CAF member. The Joint Personnel Support Unit (JPSU) “provides personal administrative support and programs to injured CAF members of the Regular and Reserve Force who have a medical condition that precludes them from returning to their normal place of duty for a period of six months or more” (DND, 2018).

Psychological distress. Psychological distress was measured using the Kessler Psychological Distress Scale (K10) (Kessler et al., 2002). The K10 is a validated tool, which has been used in a number of large population health surveys (e.g., CCHS). The scale is comprised of 10 statements reflecting symptoms of distress (e.g., “Tired out for no good reason,” “So nervous that nothing could calm you down.”). Respondents were asked to rate how often they have experienced each using a 5-point scale ranging from 1 (“None of the time”) to 5 (“All of the time”). This scale had a strong internal consistency, with a Cronbach’s alpha of .90.

Relationship quality. Relationship quality was measured using an adapted form of the Quality of Marriage Index (Norton, 1983). The scale is comprised of 6 statements concerning the extent to which respondents are happy in their relationship (e.g., “I have a good marriage/relationship”, “Everything considered, there could not be more happiness in our marriage/relationship”). Respondents were asked to rate their level of agreement with each using a 7-point scale ranging from 1 (“Very strongly disagree”) to 7 (“Very strongly agree”). This scale had a strong internal consistency, with a Cronbach’s alpha of .96.

Intimate partner violence. Respondents were asked to respond either yes or no to questions on physical (9 items) and emotional and financial (7 items) violence. The items were drawn from the General Social Survey, Cycle 23, Victimization (Statistics Canada, 2009), where items were adapted from the Conflict Tactics Scale (Straus, 1979). Respondents were asked whether they had experienced one or more of the following: thrown objects, pushing, grabbing, shoving, slapping, kicking, biting, hitting, choking, beating, severe jealousy, having limited contact with friends and family, and having

personal property destroyed. This scale consists of two subscales, created by summing the responses for (1) physical and (2) emotional violence. The Cronbach's alpha for the overall scale was .80 and for the subscales were .82, and .83, respectively.

Perceived organizational support. A three-item subscale was adapted from the Support and Resiliency Inventory (Bowen & Martin, 2011). The scale is comprised of three statements concerning the extent to which respondents perceive support from an organization (i.e., "I can depend on help from my spouse/partner's unit leaders, if I request it," "I can depend on help from military agencies at this base/installation, if I request it", "I can depend on help from my spouse/partner's base/installation leaders, if I request it"). Respondents were asked to rate their level of agreement with each using a 6-point scale ranging from 1 ("Strongly disagree") to 6 ("Strongly agree"). Higher scores indicate higher perceptions of organizational support. This scale had a strong internal consistency, with a Cronbach's alpha of .91.

Satisfaction with organization. For the purposes of this survey, a scale was constructed consisting of 2 items concerning the individual's satisfaction with the military organization. Respondents were asked to rate their agreement with two dimensions of satisfaction with an organization ("Overall, compared to the last five years, I am more satisfied with the support provided by the Canadian Forces", "The CF looks after the families of its service members."). Responses ranged from 1 ("Strongly disagree") to 5 ("Strongly agree"). This internal consistency was .87.

Financial strain. Respondents were asked to rate their agreement on three statements ("I have enough money to pay my bills each month", "I have incorporated savings into the family budget", "I have some extra money set aside in case of an

emergency”). They were adopted from the Support and Resiliency Inventory - Financial Management (Bowen & Martin, 2011). It was based on a 6-point scale ranging from 1 (“Strongly disagree”) to 6 (“Strongly agree”). Ratings were recoded, so that higher scores indicated higher financial strain. This scale had a strong internal consistency, with a Cronbach’s alpha of .88.

Results

Preliminary Analyses

The examination revealed that five variables had values for skewness or kurtosis that did not fall within the -1 to $+1$ range (Field, 2009; Gravetter & Wallnau, 2008). However, the only extreme cases of skewness and kurtosis were found for the variables assessing emotional intimate partner violence and physical intimate partner violence. Due to the nature of these constructs, these two variables are typically extremely skewed. Furthermore, linear regression is fairly robust to normality violations and in large sample sizes (e.g. where the number of observations per variable is > 10), violation of the normality assumption did not noticeably impact results (Schmidt & Finan, 2018). Furthermore, it has been proposed that in large data settings, such transformations are often unnecessary and worse, may bias model estimates (Schmidt & Finan, 2018). The mean, standard deviation, skewness, and kurtosis for each scale are presented in Table 10.

Table 10

Study 2 Descriptive Statistics

Scale	Possible Range	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Perceived organizational support	1-6	3.46	1.44	-0.25	-0.95
Satisfaction with organization	1-5	2.81	0.99	-0.27	-0.56
Financial strain	1-6	2.22	1.40	1.18	0.54
Psychological distress	1-5	1.80	0.67	1.23	1.53
Relationship with spouse	1-7	5.89	1.26	-1.47	2.32
Emotional IPV	1-5	1.20	0.39	3.10	12.95
Physical IPV	1-5	1.03	0.15	8.80	104.38

Correlation Analysis

Prior to testing the hypotheses, correlations between study variables were assessed (Table 11). Being a spouse of an injured member was significantly correlated with the four outcome variables, suggesting that spouses of injured members reported significantly higher levels of psychological distress, experiences of emotional intimate partner violence and physical intimate partner violence. In addition, spouses of injured members reported lower levels of relationship quality with their respective spouse.

There were significant associations among outcome variables, suggesting that higher psychological distress is associated with higher experiences of emotional intimate partner violence and physical intimate partner violence. In addition, psychological distress was negatively associated with relationship with spouse.

Table 11

Study 2 Correlation Table

Variable	1	2	3	4	5	6	7	8	9
1. Age									
2. Gender	.14**	-							
3. Spouse of injured member	.05*	-.05	-						
4. Perceived organizational support	.05*	.00	-.04	-					
5. Satisfaction with organization	-.03	.01	-.03	.52**	-				
6. Financial strain	-.18**	-.03	.04	-.21**	-.25**	-			
7. Psychological distress	-.06*	-.02	.10**	-.31**	-.27**	.29**	-		
8. Relationship with spouse	-.07**	-.02	-.07**	.23**	.22**	-.20**	-.32**	-	
9. Emotional IPV	-.02	.11**	.13**	-.13**	-.16**	.14**	.26**	-.44**	-
10. Physical IPV	.00	.15**	.06*	.07**	.12**	.13**	.16**	.23**	.53**

Note: Gender: 0 = male, 1 = female; Spouse of injured member: 0 = no, 1 = yes

* $p < .05$.; ** $p < .01$.

Group Differences

A series of independent samples t-tests were computed to test if there were differences between spouses of injured and non-injured members on any of the main variables (see Table 12). Due to unequal group sizes, Levene's test of homogeneity of variances was assessed. In the cases where Levene's Test was statistically significant (this indicates that the group variances are unequal in the population), I corrected for the violation by using an adjustment to the degrees of freedom using the Welch-Satterthwaite method rather than the pooled estimate for the error term for the t-statistic. The average responses to perceived organizational support, satisfaction with organization, financial strain, psychological distress, relationship with spouse, emotional intimate partner violence and physical intimate partner violence are presented for both groups. There were significant differences between spouses of injured and non-injured members on psychological distress, relationship with spouse and emotional intimate partner violence. Specifically, spouses of injured members had a higher mean score on psychological distress, were lower on relationship with spouse, and reported experiencing more emotional intimate partner violence.

Table 12

Study 2 Results of t-test and Descriptive Statistics by Groups

	Spouses of injured members <i>n</i> = 110	Spouses of non- injured members <i>n</i> = 1553	<i>T</i>
Perceived organizational support	3.26 (1.50)	3.50 (1.42)	-1.70
Satisfaction with organization	2.69 (1.06)	2.82 (0.98)	-1.26
Financial strain	2.42 (1.65)	2.20 (1.38)	1.08
Psychological distress	2.04 (0.85)	1.76 (0.65)	3.40**
Relationship with spouse	5.57 (1.44)	5.92 (1.24)	-2.76**
Emotional IPV	1.38 (0.62)	1.18 (0.36)	3.36**
Physical IPV	1.06 (0.19)	1.03 (0.14)	1.72

Moderated Regression

To conduct multiple regression analyses, Hayes PROCESS macro was employed (Hayes, 2013; Model 1 = simple moderation). By using this program, it also allowed estimation of the bias-corrected coefficients from a series of 5000 bootstrap samples (see Preacher, Rucker, & Hayes, 2007). For each moderator variable a hierarchical multiple regression analysis was performed separately. Age and sex were included as covariates in the moderation model because they were significantly correlated with some of the outcome variables and were included to control for any confounding effects.

Moderation of the Relationship between JPSU Posting (spouse of injured vs. spouse of non-injured member) and Psychological Distress. To test the hypothesis that perceived organizational support, satisfaction with organization and financial strain moderated the relationship between JPSU posting (spouse of injured vs. spouses of non-injured members) and psychological distress, three moderation analyses were conducted.

First, in terms of organizational support as a moderator of the relationship between JPSU posting and psychological distress, the data showed that while the overall model explained 11% of the total variance in psychological distress ($R^2 = .11, p < .001, F(5, 1573) = 37.96, p < .001$) the interaction was not significant (See Table 13). Second, the analysis of satisfaction with organization as a moderator of the relationship between JPSU posting and psychological distress showed that while the overall model explained 9% of the total variance in psychological distress ($R^2 = .09, p < .001, F(5, 1560) = 32.24, p < .001$), the interaction was not significant (See Table 13). Lastly, the analysis of financial strain as a moderator of the relationship between JPSU posting and psychological distress showed that the overall model explained 11% of the total variance in psychological distress ($R^2 = .11, p < .001, F(5, 906) = 23.16, p < .001$), and that the

interaction was significant, explaining an additional 1% of variance in psychological distress ($\Delta R^2 = .01$, $F(1, 906) = 4.14$, $p < .05$). To examine the nature of this relationship, the interaction was plotted using the simple main effects equation, utilizing values ± 1 *SD* above and below the mean. Figure 5 plots the simple slopes for this interaction. At high levels of financial strain, spouses of JPSU members reported experiencing significantly higher psychological distress than those with low financial strain. While the pattern is similar with spouses of non-JPSU members, the impact of the level of financial strain is stronger for spouses of JPSU members.

Table 13

Study 2 Moderation Analyses of the Relationship between JPSU posting and Psychological Distress

Path	Estimate	SE	P	95% CI Lower, Upper
JPSU → Distress	.22	.06	.00*	.10, .35
Org. Support → Distress	-.14	.01	.00*	-.17, -.12
JPSU X Org. Support → Distress	-.00	.04	.96	-.09, .08
JPSU → Distress	.22	.07	.00*	.09, .35
Org. Sat. → Distress	-.19	.02	.00*	-.22, -.16
JPSU X Org. Sat. → Distress	-.08	.06	.22	-.20, .05
JPSU → Distress	.33	.08	.00*	.17, .49
Financ. Strain → Distress	.14	.02	.00*	.11, .17
JPSU X Financ. Strain → Distress	.10	.05	.04*	.00, .20

Note: Controlling for sex and age. 5,000 bootstrap resamples used to generate 95%

confidence intervals.* = Significant at the 0.05 level (2-tailed).

Figure 5. Financial strain as a moderator of the relationship between JPSU Posting and psychological distress.

Note: Controlling for sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Moderation of the Relationship between JPSU Posting and Relationship with Spouse. To test the hypothesis that perceived organizational support, satisfaction with organization and financial strain moderated the relationship between JPSU posting (spouse of injured vs. spouses of non-injured members) and relationship with spouse, three moderation analyses were conducted.

First, analysis of organizational support as a moderator showed that while the overall model explained 5% of the total variance in relationship with spouse ($R^2 = .05$, $p < .001$, $F(5, 1552) = 16.15$, $p < .001$), the interaction was not significant (See Table 14). Next, analysis of satisfaction with organization as a moderator showed that while the

overall model explained 5% of the total variance in relationship with spouse ($R^2 = .05$, $p < .001$, $F(5, 1552) = 17.92$, $p < .001$), the interaction was not significant (See Table 14).

Lastly, analysis of financial strain as a moderator showed that while the overall model explained 6% of the total variance in relationship with spouse ($R^2 = .06$, $p < .001$, $F(5, 899) = 10.87$, $p < .001$), the interaction was not significant (See Table 14).

Table 14

Study 2 Moderation Analyses of the Relationship between JPSU posting and Relationship with Spouse

Path	Estimate	SE	p	95% CI Lower, Upper
JPSU → Spouse Rlshp.	-.29	.12	.02*	-.54, -.05
Org. Support → Spouse Rlshp.	.20	.02	.00*	.16, .25
JPSU X Org. Support → Spouse Rlshp.	-.05	.08	.57	-.21, .11
JPSU → Spouse Rlshp.	-.29	.13	.02*	-.53, -.04
Org. Sat. → Spouse Rlshp.	.27	.03	.00*	.21, .33
JPSU X Org. Sat. → Spouse Rlshp.	.11	.12	.37	-.13, .35
JPSU → Spouse Rlshp.	-.36	.17	.03*	-.69, -.04
Financ. Strain → Spouse Rlshp.	-.18	.03	.00*	-.24, -.12
JPSU X Financ. Strain → Spouse Rlshp.	-.09	.10	.39	-.29, .11

Note: Controlling for sex and age. 5,000 bootstrap resamples used to generate 95%

confidence intervals.

* = Statistically Significant

Moderation of the Relationship between JPSU Posting and Emotional

Intimate Partner Violence. To test the hypothesis that perceived organizational support, satisfaction with organization and financial strain moderated the relationship between JPSU posting (spouse of injured vs. spouses of non-injured members) and emotional intimate partner violence, three moderation analyses were conducted.

First, analysis of organizational support as a moderator indicated that the overall model explained 6% of the total variance in emotional intimate partner violence ($R^2 = .06, p < .001, F(5, 1560) = 20.70, p < .001$), and that the interaction was significant, explaining an additional 1% of variance in emotional intimate partner violence ($\Delta R^2 = .01, F(1, 1552) = 9.66, p < .01$). To examine the nature of this relationship, the interaction was plotted using the simple main effects equation, utilizing values $\pm 1 SD$ above and below the mean. Figure 6 plots the simple slopes for this interaction. At low levels of organizational support, spouses of JPSU members reported experiencing significantly higher emotional intimate partner violence than those with high organizational support. The spouses of non-JPSU members reported approximately the same level of emotional intimate partner violence regardless of the level of organizational support.

Next, analysis of satisfaction with organization as a moderator indicated that while the overall model explained 6% of the total variance in emotional intimate partner violence ($R^2 = .06, p < .001, F(5, 1554) = 19.60, p < .001$), the interaction was not significant (See Table 15). Lastly, analysis of financial strain as a moderator showed that while the overall model explained 8% of the total variance in emotional intimate partner

violence ($R^2 = .08$, $p < .001$, $F(5, 893) = 15.59$, $p < .001$), the interaction was not significant (See Table 15).

Table 15

Study 2 Moderation Analyses of the Relationship between JPSU posting and Emotional Intimate Partner Violence (IPV)

Path	Estimate	SE	p	95% CI Lower, Upper
JPSU → Emotional IPV	.18	.04	.00*	.11, .26
Org. Support → Emotional IPV	-.03	.01	.00*	-.04, -.02
JPSU X Org. Support → Emotional IPV	-.08	.03	.02*	-.13, -.03
JPSU → Emotional IPV	.19	.04	.00*	.11, .26
Org. Sat. → Emotional IPV	-.06	.01	.00*	-.08, -.05
JPSU X Org. Sat. → Emotional IPV	-.07	.04	.06	-.14, .00
JPSU → Emotional IPV	.26	.05	.00*	.17, .35
Financ. Strain → Emotional IPV	.04	.01	.00*	.02, .05
JPSU X Financ. Strain → Emotional IPV	.05	.03	.07	-.00, .11

Note: Controlling for sex and age. 5,000 bootstrap resamples used to generate 95%

confidence intervals.

* = Statistically Significant

Figure 6. Organizational support as a moderator of the relationship between JPSU posting and emotional intimate partner violence.

Note: Controlling for sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Moderation of the Relationship between JPSU Posting and Physical Intimate Partner Violence. To test the hypothesis that perceived organizational support, satisfaction with organization and financial strain moderated the relationship between JPSU posting (spouse of injured vs. spouses of non-injured members) and physical intimate partner violence, three moderation analyses were conducted.

First, analysis of organizational support as a moderator showed that while the overall model explained 6% of the total variance in physical intimate partner violence ($R^2 = .06, p < .001, F(5, 1560) = 20.70, p < .001$), the interaction was not significant (See Table 16). Next, analysis of satisfaction with organization as a moderator indicated that

the overall model explained 5% of the total variance in physical intimate partner violence ($R^2 = .05, p < .001, F(5, 1559) = 16.70, p < .001$), and that the interaction was significant, explaining an additional 1% of variance in physical intimate partner violence ($\Delta R^2 = .01, F(1, 1559) = 7.57, p < .01$). To examine the nature of this relationship, the interaction was plotted using the simple main effects equation, utilizing values $\pm 1 SD$ above and below the mean. Figure 7 plots the simple slopes for this interaction. At low levels of satisfaction with organization, spouses of JPSU members reported experiencing significantly higher physical intimate partner violence than those with high satisfaction with organization. The spouses of non-JPSU members reported approximately the same level of physical intimate partner violence regardless of the level of satisfaction with organization. Lastly, analysis of financial strain as a moderator showed that while the overall model explained 8% of the total variance in physical intimate partner violence ($R^2 = .08, p < .001, F(5, 893) = 15.59, p < .001$), the interaction was not significant (See Table 16).

Table 16

Study 2 Moderation Analyses of the Relationship between JPSU posting and Physical Intimate Partner Violence (IPV)

Path	Estimate	SE	p	95% CI Lower, Upper
JPSU → Physical IPV	.03	.01	.02*	.01, .06
Org. Support → Physical IPV	-.01	.00	.01*	-.01, .00
JPSU X Org. Support → Physical IPV	-.02	.01	.11	-.03, .00
JPSU → Physical IPV	.03	.01	.03*	.01, .06
Org. Sat. → Physical IPV	-.02	.00	.00*	-.02, -.01
JPSU X Org. Sat. → Physical IPV	-.04	.01	.01*	-.07, -.01
JPSU → Physical IPV	.05	.02	.03*	.01, .09
Financial Strain → Physical IPV	.02	.00	.00*	.01, .03
JPSU X Financial Strain → Physical IPV	.02	.01	.17	-.01, .05

Note: Controlling for sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

* = Statistically Significant

Figure 7. Satisfaction with organization as a moderator of the relationship between JPSU posting and physical intimate partner violence.

Note: Controlling for sex and age. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Discussion

The purpose of Study 2 was to evaluate the impact of occupational injuries on spouses and to examine what conditions may exacerbate or mitigate these effects. The results indicate that having a military member spouse who experienced occupational injuries has a direct effect on spousal psychological distress, relationship with spouse and experience of emotional intimate partner violence. Furthermore, it appears that having an injured spouse may influence more psychological distress when there is higher financial strain. Also, having an injured spouse may influence more emotional intimate partner violence when there is a lowered sense of organization support. Similarly, having an

injured spouse may influence more physical intimate partner violence when there is a lowered sense of satisfaction with military organization. Contrary to expectations, these three moderators (i.e., financial strain, perceived organizational support, and satisfaction with organization) did not moderate the effect of having an injured spouse on the relationship quality (quality of marriage).

Impact of Having an Injured Spouse

Although there is evidence that work affects the personal lives of employees' families (e.g., Bellavia & Frone, 2005; Mortimer, Lorence, & Kumka, 1986), there is little research on how injuries at work affect the personal lives and family members of those who are injured. Past literature confirms that spouses of injured veterans report more psychological distress than spouses of non-injured veterans (Dirkzwager, Bramsen, Ader, & van der Ploeg, 2005; Jordan et al., 1992; Outram, Hansen, Macdonell, Cockburn, & Adams, 2009). As well, close and maintained contact with an injured veteran may serve as a lasting source of distress, which over time can result in symptoms of distress manifesting in the non-injured partner who takes on a caregiver role (Ohaeri, 2001). There is research showing that injuries can negatively influence marital relationships and lead to divorce (e.g. Arango-Lasprilla et al., 2010). A study of injured individuals found that the additional roles assumed by their spouses combined with the injured individual's moods and temper were described as causing a strain in marital relationships (Strunin & Boden, 2004). Furthermore, previous research suggests that spouses of military members are at higher risk of IPV (Jordan et al., 1992; Orcutt, King, & King, 2003; Riggs, Byrne, Weathers, & Litz, 1998). It has been suggested that hyperarousal symptoms (e.g. increased anger and impulsivity) from some injuries, such

as PTSD and TBI may account for the relationship between mental illnesses and IPV (Taft, Walling, Howard, & Monson, 2011).

Based on the past research, I hypothesized that the stress experienced by the injured individual would cross over to their spouse, and have a negative impact on their well being and relationships. Spouses of injured members reported higher psychological distress, worse spousal relationships, and greater emotional IPV than spouses of non-injured members. The reason for the lack of significantly increased physical IPV could be due to overall low occurrence of physical IPV. Overall, these findings extend previous research that suggests that the impact of injuries is not limited to the injured; it extends to family members, especially spouses.

Organizational Support

Organizational support represents a major contextual resource that can reduce stress and burnout (Halbesleben, 2006). Given that organizational support can be considered a valued resource (e.g., Marchand & Vandenberghe, 2016; Panaccio & Vandenberghe, 2009) that helps buffer against stressors and burnout (e.g., Kurtessis et al., 2015), it would be expected that this resource might be especially relevant while one is dealing with an occupational injury.

Research on the role of organizational support in buffering the effects of stressors on the spouses of injured individuals is very limited. Perceived organizational support from the military could be an important resource for military spouses as they are coping with stressors related to caring for injured members. Similarly, organizational support was found to buffer the negative effects of stressors (such as work spillover) on family adaptation and marital happiness (Bowen, 1998).

Based on the COR theory as well as past research, I hypothesized that organizational support would act as a contextual resource that reduces stress in the spouse of the injured member. Organizational support was found to be a significant moderator in the relationship between having an injured spouse and experiencing emotional IPV. Spouses of injured individuals who reported more organizational support were more likely to report less emotional IPV. When looking at the plotted interactions, it is evident that organizational support is protective for spouses of injured individuals. It does not seem to have as large of an effect on spouses of non-injured members. It is possible that if the military organization is providing support to the injured member, in the form of therapy, education and training to learn how to better manage their anger and impulsive actions, this will result in less emotional IPV towards the spouse of the injured member. Given that the cross-sectional design of this study does not allow for the evaluation of causal inferences, it is also possible that spouses of injured members experiencing emotional IPV place the blame of their injured member's actions on the military organization, reporting less organizational support. Organizational support also had a direct effect on all four outcomes; psychological distress, relationship with spouse, emotional IPV, and physical IPV, irrespective of spousal injuries. This is in line with work-family interface theories, demonstrating the impact of organizational support for individual outcomes.

Satisfaction with Organization

Based on previous research showing that spousal perception of unit support and satisfaction with services are positively associated with family outcomes (Pittman, Kerpelman, & McFadyen, 2004) I hypothesized that satisfaction with organization would

buffer the effects of having an injured spouse had on well-being and relationship outcomes.

Satisfaction with organization significantly moderated the relationship between having an injured spouse and experiencing physical IPV. When looking at the plotted interactions, high satisfaction with organization seems protective for spouses of injured members. Similarly with perceived organizational support, given the nature of this construct, it is likely that a bidirectional relationship exists. It is possible that spouses who are experiencing physical IPV at the hands of their injured military members may feel that it is the organization to blame for their partner's actions. One of the items in the satisfaction with organization measure asks whether or not the individual agrees with the statement 'The CAF looks after the families of its service members'. If a spouse is experiencing physical IPV, which they interpret as a direct result of their military member's occupational injury, the spouse may disagree with this statement. They may feel that the CAF is not looking after the military member enough by not providing enough support for them to heal from their injury, as well as not providing the spouses with enough support to help themselves as well as enabling them to better support their injured military member.

Satisfaction with organization also had a direct effect on all four outcomes, irrespective of spousal injury. Satisfaction with organization significantly predicted psychological distress, relationship with spouse, emotional IPV, and physical IPV. While these relationships are generally consistent with past research that shows that satisfaction with organization is positively associated with family well-being outcomes, it is also possible that these relationships may be reversed. Satisfaction with organization may be

the outcome of these variables. This is perhaps, one can speculate, because some spouses may see their military member as a reflection or representation of the organization. They are the member of the military that the spouse interacts with most, one can assume. If a spouse has positive feelings towards their military member, it is likely that the spouse has positive feelings towards the military in general as well.

Financial Strain

Financial strain is one factor that influences outcomes of occupational injuries (Dembe, 2005). It is common in military families for spouses to be underemployed and underpaid due to frequent postings across the country (Maury & Stone, 2014), exacerbating financial strain issues. Indeed, military spouse employment concerns have become a major topic of discussion within the military organization. It has been found that despite having higher levels of education, military spouses earn less and have significantly higher rates of unemployment than their civilian counterparts (Harrell, Lim, Castaneda, & Golinelli, 2004; Institute for Veterans & Military Families, 2014).

Financial strain constitutes a tremendous loss of a contextual resource. When dealing with an injured partner, it is understandable how the compounding stress occurring from another loss of a resource could result in poor well-being outcomes. To cope with the stress they experience in one domain due to threatened or lost resources, individuals often utilize resources from other life domains (Hobfoll, 2001).

I hypothesized based on the COR theory and existing research, that financial strain would significantly moderate the relationship between having an injured spouse and lower well-being and relationship outcomes.

Financial strain significantly moderated the relationship between having an injured spouse and experiencing psychological distress. When looking at the plotted interactions, it is evident that low financial strain is protective for spouses of injured individuals. It does not seem to have as large an effect on spouses of non-injured members. This is in line with previous research as well as the COR theory. Financial strain constitutes the loss of a resource, and when compounded by the loss of a major personal resource such as one's health, the outcome is poor. It is very likely that a severely injured member will contribute less to the household responsibilities and time available for childcare. In these situations, it is possible that the healthy spouse might need to take on more responsibilities either household related or providing care to the injured spouse. These pressures on a healthy spouse might have consequences for their own employment (e.g. work less hours or convert to part-time), which may create financial strain.

Interestingly, financial strain had direct effects on all four outcomes, irrespective of the spousal injuries. Specifically, financial strain significantly predicted psychological distress, emotional IPV, physical IPV, and relationship with spouse for all spouses. This is in line with previous research suggesting that financial strain is very detrimental to relationships and as such is among the most common (along with infidelity) reasons cited for divorce (Amato & Rogers, 1997; Goldhart, 2015). The present study extended the findings of previous research that found that financial satisfaction significantly predicts general well-being among military spouses (Rosen, Ickovics, & Moghadam, 1990) and that it has been positively associated with military spouses' marital satisfaction and

general well-being but negatively associated with their depressive symptoms (Thoresen & Goldsmith, 1987).

General Discussion

The aim of the present research was to (1) extend previous research that has examined the individual effects of occupational injuries by examining the outcomes of injuries among military members, and (2) explore the effects that workplace injuries have on family members of injured individuals, specifically on the spouses of military members. Many empirical studies examining work-family interface have provided evidence that the two domains influence each other. (e.g., Agha, Azmi, & Irfan, 2017; Bellavia & Frone, 2005; Boyar, Maertz, Person, & Keough, 2003; Grandey, Cordeiro, & Crouter, 2005; Huang, Hammer, Neal, & Perrin, 2004; Knecht, Wiese, & Freund, 2016). Furthermore, a few studies suggest links between a workplace injury and one's overall quality of life, work-family balance, and personal relationships (Dembe, 2001; Lawrence et al., 2013; Verhaeghe, Defloor, & Grypdonck, 2005). However, studies examining the widespread effects of occupational injuries are rare and research has tended not to focus on the indirect outcomes of occupational injuries on family members. The current research focused on addressing these limitations.

Extending the past research findings, this study found that experiencing an occupational injury has an impact not only on the injured members' psychological distress, but also on their relationship with their spouse and children (Study 1). It has also shown that among injured members, the perceived general health predicted their psychological distress, affected the relationship with their spouse and children, and affected their alcohol use. This was consistent with the proposal that the effects of

injuries should be examined beyond the perspective of an injury as binary, and that examining overall general health might provide a more nuanced understanding of the impact of the injury. Furthermore, the present research explored what conditions may exacerbate the effects of injuries. It was found that career satisfaction and sense of community belonging can play a buffering role and protect those who are severely injured, especially in terms of problematic alcohol use (Study 1).

Furthermore, this study validated the proposition that injury affects not only injured members, but the spouses, as well. Spouses of injured members had higher psychological distress, lower satisfaction with relationship and reported more emotional IPV (Study 2). It was also found that financial stability, perceived organizational support and satisfaction with organization can play a buffering role and protect spouses of injured members (Study 2).

Implications of the present research

The current research contributes to the literature in several ways. Although there is a breadth of research focusing on the outcomes associated with work, there is an incomplete understanding of the consequences of occupational injuries. These studies sought to add to the existing body of knowledge by describing, and examining individual and organizational characteristics among injured military members and their spouses that were not yet explored in the academic literature.

The present research importantly advances the understanding of various effects of occupational injuries on both injured members and their spouses, and provides insight as to certain buffering factors in the relationship between occupational injuries and negative outcomes in both injured workers and their spouses. The present approach illustrates the

applicability of the COR theory in which health is viewed as a personal resource and that losing this resource leads to stress in the home/family domain. Further, the present studies supported the notion that individuals often utilize other resources (from other life domains) to cope with stress. It was found that career satisfaction and strong sense of community belonging served as protective factors for injured members, while financial stability, perceived organizational support and satisfaction with organization acted as protective factors for the spouses of injured members.

Finally, from an applied perspective, this study underlines the importance of considering the wide consequences of occupational injuries, including the impact on the well-being of military spouses and their relationships. These are important findings for military organizations to consider because the well-being of military spouses has been found to influence the retention of military personnel (Harrell et al., 2004). Social programs that enhance the well-being of military families are therefore likely to result in better recovery and rehabilitation of injured members and, thus, to increase the retention of military personnel. Findings suggest that there are multiple avenues that can be used to support military families post-injury. These might include increased financial stability and organizational support. Moreover, career satisfaction (by injured members), perceived organizational support, and satisfaction with organization (by spouses) are certainly influenced by the leadership of the organization. Thus, it could be implied that how leadership responds and treats injured members and their families may contribute to the well-being of both, injured members and their spouses. Similarly, policies in place regarding injured members may have career implications and directly affect career satisfaction.

During a time when the military is in the midst of shifting its operational tempo from a period defined by combat and deployment to one of recovery, it becomes increasingly important that we explore and identify the characteristics associated with recovery of ill/injured members and military spousal well-being so that we can learn how to best meet their needs. The implications drawn from the study's findings highlight areas for consideration within the military community and social work profession, and may help to guide subsequent efforts towards supporting the recovery of injured members and the well-being of military spouses and their families. Finally, any organizational effort to deal with employees' injuries should consider the impact on family and take that into account when developing family and organizational interventions.

Limitations and future research

The present research has some limitations that may have affected the results and the conclusions that can be drawn. A key limitation was not using a longitudinal research design. It would have been ideal to have a longitudinal design that followed individuals through the experience of an injury. Furthermore, a main gap in the present research was the absence of couple-level data. Dyadic couple-level data would provide additional insights into the nature of the interpersonal relationships, which would help our understanding of the complexities of multiple roles in different domains. Therefore, future research should attempt to conduct longitudinal studies with dyadic designs to increase understanding of the process of vicarious experiences with injuries. For example, the spousal relationship following injury may go through many different phases, as one undergoes treatment and possible release from the military. Again, these effects could be better examined with longitudinal data.

Although gender was controlled for in the above analysis, gender may potentially be an important factor in the relationships between occupational injuries and stresses/strain in both injured individuals and their spouses. Given that these studies are from the military community, the sample of injured members was predominantly male (Study 1), while the spouses were predominantly female (Study 2). Although this is consistent with the military family population, the generalizability of these findings is limited to this population. Furthermore, these studies included only heterosexual couples, thereby excluding any same-sex couples. Future research should address how same-sex couples may be affected by the experience of an occupational injury.

While including both, physical and mental health injuries into the 'injured' sample for both injured members and their spouses represents a contribution of this study, it would have been beneficial to examine the impact of these injuries separately. The current 'injured' sample (Study 1) was not of sufficient size to separate mental and physical injuries. Since military policies related to enrolment preclude accepting anyone with a mental illness, it is assumed that mental illness among military members is attributed, at least partially to military service. Similarly, musculoskeletal injuries in military members have been associated with military service activities such as physical training, mechanical work, airborne landings, and sports (Knapik et al., 2007). However, it is still possible that some of the injuries were related to the members' health conditions before joining the military.

In addition, the specific diagnoses for the military members in Study 2 are not known, since the sample includes the spouses of military members posted in the JPSU (i.e. unit providing support to injured military members). It is possible that a small

proportion of those posted to the JPSU could have been diagnosed with health conditions that were not service related.

Finally, given the high incidence of comorbidity of the mental and physical health problems in the military population (El-Gabalawy et al., 2015), future studies should examine each type of injury individually, as well as comorbidity. Comorbidity of mental and physical health problems presents significant challenges to patients and health care providers because comorbidity is associated with greater clinical severity and poorer treatment outcomes (Rollman & Huffman, 2013).

Whereas occupational health and the work-family interface are significantly researched areas, research on the relationship between occupational injuries and both individual outcomes and spousal outcomes is very limited. Therefore, the theoretical frameworks guiding this research are speculative and may not fully explain the complex relationships between workplace injury and negative and positive outcomes in injured individuals and spouses of injured individuals. Future studies should examine the mediating mechanisms of the relationship between injury and well-being outcomes. Particularly, future research should include variables such as caregiving burden, coping strategies and social support to further explore the impact of injuries on family.

However, as these are the first studies of their kind, these studies provide a useful framework for future research exploring the widespread effects of occupational injuries. This research advances the understanding of various effects of occupational injuries on both injured employees and their romantic partners, and provides insight as to certain mitigating factors in the relationship between occupational injuries and negative outcomes in both injured workers and their romantic partners. Future research using

different methodologies and matched dyadic data will be important in continuing this line of work, as well as extending the model presented in these studies to include various other potential mediators (e.g., negative emotions, disability, role change) and outcome variables (e.g., life satisfaction, job satisfaction, intimacy).

Conclusion

Despite the depth of research focusing on the individual and organizational outcomes associated with the experience of work, limited research has explored the effects of workplace injuries, and as such, there continues to be an incomplete understanding of the consequences of occupational injuries (e.g., Barling & Frone, 2003). Improving the effects of occupational injuries for those who have been injured, as well as for their families, requires an effort to provide these individuals with the resources they may require to reduce or eliminate any potential negative effects. This is especially true for those who serve our country and their families.

The results of my studies suggest that stress related to occupational injuries spills over into the family context, affecting not only one's psychological well-being, but also their relationship with their spouse and children. Further, the findings suggest that stress caused by spousal injury crosses over and influences the psychological well-being, relationship satisfaction, and emotional IPV of the spouses of injured members. Some contextual resources that could buffer the effects of occupational injury were identified; these include career satisfaction and community belonging for the injured, and financial stability, organizational support and satisfaction with organization for the spouses of injured members.

In conclusion, my findings suggest that organizations may have leverage in supporting employees with occupational injuries, by improving factors that impact satisfaction with career and by encouraging community belonging. Similarly, improving resources for the spouses of individuals who experience occupational injuries may promote spousal well-being. More specifically, the results could assist the CAF and other militaries in optimizing resources, services, programs, and policies to better support injured military members and their families.

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Appendix A - Member Survey

This appendix only includes the questions analyzed in this study.

Military Community Wellness:**INSTRUCTIONS:**

Please answer the questionnaire fully and honestly. It will take approximately one hour to complete. The confidentiality of your responses is guaranteed. Help us contribute to the health and effectiveness of our people and the organization.

WHEN YOU'RE FINISHED:

Seal the questionnaire in the enclosed envelope and place it in any mailbox.
Thank you for your assistance.

AIM: As you are aware, military personnel face a number of unique challenges associated with the military lifestyle, such as overtime, temporary housing, frequent

relocations, separations and deployments. While this is a necessary part of military life, we understand that this can have a significant impact on the military members as well as on their families. The attached survey will be an important source of information about the wellness of Canadian Forces families as well as about your experiences and attitudes in relation to the demands of military service, including deployments and postings. We hope that you will see this survey as an opportunity to communicate your views. Your participation will enable us to examine the wellness of the military community as well as to obtain your views on the factors that play important roles in the well-being of your families. Please complete the questionnaire and place it in any mailbox using the enclosed envelope.

PARTICIPATION:

Participation in this study is voluntary. However, maximum participation is crucial in order for us to obtain an accurate picture of the impacts of military life on families. Should you decide to participate, please complete all sections of this survey fully and honestly.

CONFIDENTIALITY:

The responses that you provide will remain confidential. We do not ask for any identifying information, and there is no possibility that the completed survey will be linked to you or your military spouse. Under the Access to Information Act, Canadian citizens are entitled to obtain copies of reports and data held in federal government files - this includes information from this survey. Similarly, under the Privacy Act, Canadian citizens are entitled to copies of all information concerning them that is held in federal government files. However, prior to releasing the requested information, the Director of Access to Information and Privacy (DAIP) screens the data to ensure that individual identities are not disclosed. The results from this survey administration will only be released in combined form to ensure that the anonymity of all participants is protected. In other words, your individual responses will not be released, and you will not be identified in any way. To further safeguard your anonymity and privacy, you should not write your name anywhere on this questionnaire. Second, you should ensure that any written comments you may offer are sufficiently general that you cannot be identified as the author.

Thank you for your valuable contribution to our study

Background Information

What is your gender? ☐ Male ☐ Female

How old are you? years

What is your current marital status?

- ☐ Never legally married (single)
- ☐ Divorced
- ☐ Legally married (and not separated)
- ☐ Widowed
- ☐ Separated, but still legally married
- ☐ Living common-law

What is your rank?

☐	Junior	☐	Junior
☐	NCM	☐	Officer
☐	Senior	☐	Senior
☐	NCM	☐	Officer

What environment are you in? (by uniform)

☐ Sea

☐ Land

☐ Air

Health

Please be frank in responding to the questions below - it is crucial that you answer these difficult personal questions to the best of your ability.

Would you say your general health is:

1	2	3	4	5
Poor	Fair	Good	Very good	Excellent

Chronic Conditions – (Injury Measure)

Chronic conditions are long term conditions that have lasted **6 months or more**. Please indicate if you have been diagnosed **by a health professional** with any of the following conditions.

	Diagnosed with: (Select all that apply)	Have taken prescription medication for this condition over the last month
a) Food allergies	☐	☐
b) Other allergies	☐	☐
c) Asthma	☐	☐
d) Fibromyalgia or myofascial pain disorder	☐	☐
e) Arthritis or rheumatism	☐	☐
f) Musculoskeletal problems other than arthritis (e.g. tennis elbow, torn ligaments, plantar fasciitis, bursitis)	☐	☐
g) Back problems	☐	☐
h) High blood pressure	☐	☐
i) Migraine headaches	☐	☐
j) Chronic bronchitis or emphysema	☐	☐
k) Diabetes	☐	☐
l) Epilepsy	☐	☐
m) Heart disease	☐	☐
n) Cancer	☐	☐
o) Stomach or intestinal ulcers	☐	☐

Satisfaction with careers

All things considered, how satisfied or dissatisfied are you with each of the following, OVERALL:

	Co mpletely unsatisfied	Ne ither Satisfied nor Dissatisfi ed	Co mpletely Satisfied
The military way of life.	1	4	7
Your quality of life in the CF.	1	4	7
Your service in the CF.	1	4	7
Career management.	1	4	7
Career progression.	1	4	7
The promotion system.	1	4	7
Posting frequency.	1	4	7
Working hours.	1	4	7
Working relationships.	1	4	7
Recognition you receive from your supervisor.	1	4	7
Recognition you receive from your organization.	1	4	7
Opportunities for professional development.	1	4	7
Opportunities for personal development.	1	4	7

Sense of community belonging

State the extent to which you agree with the following:

	Not at all	Little bit	So much	To a great extent
You made good friends with other military community members.				
People in the military community can rely upon one another for help.				
People in the military community have friendly relationships.				
People in the military community could collaborate in case of a serious problem.				
You participate in military community on your base.				
You participate in military community events (outside of your base).				
You participate in local community events (outside the CF).				
Your community provides services answering your cultural or language requirements.				

Psychological Health

During the past month, about how often did you feel:

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Tired-out for no good reason?	1	2	3	4	5
Nervous?	1	2	3	4	5
So nervous that nothing could calm you down?	1	2	3	4	5
Hopeless?	1	2	3	4	5
Restless or fidgety?	1	2	3	4	5

	1	2	3	4	5
So restless that you could not sit still?	0	0	0	0	0
Depressed?	1	2	3	4	5
	0	0	0	0	0
That everything was an effort?	1	2	3	4	5
	0	0	0	0	0
So sad that nothing could cheer you up?	1	2	3	4	5
	0	0	0	0	0
Worthless?	1	2	3	4	5
	0	0	0	0	0

Alcohol consumption

Please note that a 'drink' means: 1 can of beer OR 1 glass of wine or wine cooler
OR 1 drink or cocktail with 1 and a 1/2 ounces of liquor.

1. How often do you have a drink containing alcohol?

0 1 2 3
4

Never Monthly or Less 2-4 times a month 2-3 times a week 4 or more times
a week

2. How many alcoholic drinks do you have on a typical day when you are
drinking?

0 1 2 3 4
1 or 2 3 or 4 5 or 6 7-9 10 or more

3. How often do you have 6 or more drinks on one occasion?

0 1 2 3 4
Never Less than monthly Monthly Weekly Daily or

almost daily

4. How often during the past year have you found that you drank more or for a
longer time than you intended?

0 1 2 3 4

Never Less than monthly Monthly Weekly Daily or almost daily

5. How often during the past year have you failed to do what was normally
expected of you because of your drinking?

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

6. How often during the past year have you had a drink in the morning to get yourself going after a heavy drinking session?

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

7. How often during the past year have you felt guilty or remorseful after drinking?

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

8. How often during the past year have you been unable to remember what happened the night before because of your drinking?

0	1	2	3	4
Never	Less than monthly	Monthly	Weekly	Daily or almost daily

9. Have you or anyone else been injured as a result of your drinking?

0	1	2
No	Yes, but not in the past year	Yes, during the past year

10. Has a relative, friend, doctor, or health care worker been concerned about your drinking, or suggested that you cut down?

0	1	2
No	Yes, but not in the past year	Yes, during the past year

Appendix B - Spouse Survey

Quality of Life Among Military Families:

A Survey of Spouses and Partners of

Canadian Forces Members

This appendix only includes the questions analyzed in this study.

INSTRUCTIONS:

This will take approximately one hour to complete. The confidentiality of your responses is guaranteed. Help us contribute to the health and effectiveness of our military members and their families.

AIM:

As you are aware, military duty often involves the separation of members from their families, as well as frequent moves that involve adaptation to a new location. While this is a necessary part of military life, we understand that this can have a significant impact on the families and relationships of military members. This survey will be an important source of information about the experiences and attitudes of Canadian Forces (CF) families in relation to the demands of military service, including deployments and postings, and their well-being. The information that you provide will be used to inform policies, programs, and services to support our military families, and will enable us to understand the impact of military service on family members' quality of life. We hope that you will see this survey as an opportunity to communicate your views.

PARTICIPATION:

Participation in this study is voluntary. However, maximum participation is crucial in order for us to obtain an accurate picture of the impacts of military life on families. Please note that you do not have to respond to any question that you are not comfortable answering, and a list of referrals is provided at the end of the survey for your personal use should you experience a degree of unease during or after completing the survey.

CONFIDENTIALITY:

The responses that you provide will remain confidential. Neither your email nor your home address is provided to the researcher—such information is independently handled from completed surveys. Under the Access to Information Act, Canadian citizens are entitled to obtain copies of reports and data held in federal government files—this includes information from this survey. Similarly, under the Privacy Act, Canadian citizens are entitled to copies of all information concerning them that is held in federal government files. However, prior to releasing the requested information, the Director of Access to Information and Privacy (DAIP) screens the data to ensure that individual identities are not disclosed. The results from this survey administration will only be released in combined form to ensure that the anonymity of all participants is protected. In other words, your individual responses will not be released, and you will not be identified in any way.

This survey has been authorized by the CF/DND Social Science Research Review Board (Coordination #1102-12-F), in accordance with CANFORGEN 198/08.

*Section A: You and Your Military Spouse***YOU AND YOUR BACKGROUND**

What is your sex?

☐ Male

☐ Female

How old are you? ____ years of age.

What is your military spouse's rank?

☐ Junior NCM (Private / Ordinary Seaman / Able Seaman / Corporal / Leading Seaman / Master Corporal / Master Seaman)

☐ Senior NCM (Sergeant / Petty Officer 2nd class / Warrant Officer / Petty Officer 1st class / Master Warrant Officer / Chief Petty Officer 2nd class / Chief Warrant Officer / Chief Petty Officer 1st class)

☐ Junior Officer (Officer Cadet / Naval Cadet / Second Lieutenant / Acting Sub-Lieutenant / Lieutenant / Sub-Lieutenant / Captain / Lieutenant (N))

☐ Senior Officer (Major / Lieutenant-Commander / Lieutenant – Colonel / Commander / Colonel / Captain (N) and above)

Which element does your spouse belong to?

☐ The Royal Canadian Navy

☐ The Canadian Army

The Royal Canadian	
☐	Air Force

Is your spouse currently posted to a Joint Personnel Support Unit?

☐ Yes

☐ No

☐ No

Psychological well-being

In the **past four weeks**, about how often did you feel ...

	N one of the time	A little of the time	S some of the time	M most of the time	A all of the time
Tired-out for no good reason?	1	2	3	4	5
	☐	☐	☐	☐	☐
Nervous?	1	2	3	4	5
	☐	☐	☐	☐	☐
So nervous that nothing could calm you down?	1	2	3	4	5
	☐	☐	☐	☐	☐
Hopeless?	1	2	3	4	5
	☐	☐	☐	☐	☐
Restless or fidgety?	1	2	3	4	5
	☐	☐	☐	☐	☐
So restless that you could not sit still?	1	2	3	4	5
	☐	☐	☐	☐	☐
Depressed?	1	2	3	4	5
	☐	☐	☐	☐	☐
That everything was an effort?	1	2	3	4	5
	☐	☐	☐	☐	☐
So sad that nothing could cheer you up?	1	2	3	4	5
	☐	☐	☐	☐	☐
Worthless?	1	2	3	4	5

O	O	O	O	O
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Please rate your level of agreement with the following statements about your relationship with your spouse.

	V ery strongly disagree	S trongly disagree	E ither agree nor disagree	N or agree	S trongly agree	V ery strongly agree
I have a good marriage/relationship.	1 o	2 o	3 o	4 o	6 o	7 o
My marriage /relationship with my spouse is very stable.	1 o	2 o	3 o	4 o	6 o	7 o
My marriage /relationship with my spouse makes me happy.	1 o	2 o	3 o	4 o	6 o	7 o
Our marriage/relationship is strong.	1 o	2 o	3 o	4 o	6 o	7 o
I really feel like part of a team with my spouse.	1 o	2 o	3 o	4 o	6 o	7 o
Everything considered, there could not be more happiness in our marriage/relationship.	1 o	2 o	3 o	4 o	6 o	7 o

Financial strain

Please rate your level of agreement with each of the following statements as they ask you about the degree to which you meet your responsibilities to yourself and others.

	Strongly disagree	Disagree	Neutral	Slightly agree	Agree	Strongly agree
	1	2	3	4	5	6
I have enough money to pay my bills each month.	☐	☐	☐	☐	☐	☐
I have incorporated savings into the family budget.	☐	☐	☐	☐	☐	☐
I have some extra money set aside in case of an emergency.	☐	☐	☐	☐	☐	☐

Intimate partner violence

Please indicate whether or not each statement describes your relationship **with your current spouse**. No matter how well a couple gets along, there are times when they disagree, get annoyed with one another, or just have spats or fights. Your responses are important whether or not you have had these experiences.

In the last 5 years, has your spouse ...	Never	Once	2 to 3 times	More than once a month	More than once a month
	1	2	3	4	5
Tried to limit your contact with family or friends?	☐	☐	☐	☐	☐
Put you down or called you names to make you feel bad?	☐	☐	☐	☐	☐
Been jealous and didn't want you to talk to other men or women?	☐	☐	☐	☐	☐
Harmed, or threatened to harm, someone close to you?	☐	☐	☐	☐	☐
Demanded to know who you were with and where you were at all times?	☐	☐	☐	☐	☐
Damaged or destroyed your possessions or property?	☐	☐	☐	☐	☐

Prevented you from knowing about or having access to the family income, even if you asked?	O	O	O	3	O	O	5
Threatened to hit you with his/her fist or anything else that could have hurt you?	O	O	O	3	O	O	5
Thrown anything at you that could have hurt you?	O	O	O	3	O	O	5
Pushed, grabbed, or shoved you in a way that could have hurt you?	O	O	O	3	O	O	5
Slapped you?	O	O	O	3	O	O	5
Kicked you, bit you, or hit you with his/her fist?	O	O	O	3	O	O	5
Hit you with something that could have hurt you?	O	O	O	3	O	O	5
Beaten you?	O	O	O	3	O	O	5
Choked you?	O	O	O	3	O	O	5
Used or threatened to use a gun or knife on you?	O	O	O	3	O	O	5